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PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*On Ovariotomy, and the After-treatment of the Patient. Illustrated by Cases Successfully Cured.* By RICHARD G. BUTCHER, M.R.I.A.; Honorary M.D. of the University of Dublin; Vice-President of the Royal College of Surgeons in Ireland; Fellow, Licentiate, and Member of Council of that Body; Surgeon to Mercer's Hospital, and Lecturer on Clinical Surgery; late Chairman of the Surgical Court of Examiners.

CASE 1.—ENORMOUS BILOCULAR OVARIAN TUMOUR; OPERATION BY EXCISION; PERFECT RECOVERY.

CASE 2.—ENORMOUS UNILOCULAR OVARIAN TUMOUR; OPERATION BY EXCISION; PERFECT RECOVERY.

AMONGST the capital operations which have been rescued from obloquy within the last few years there is not, probably, one of greater moment, of deeper interest, than that of ovariotomy. By the painstaking investigation so strongly stamped upon the pursuit of every profession in this nineteenth century, difficulties that were too hastily put aside in former days, have been brought out again, unravelled, rescued, and overcome; the bold proceeding under

consideration affords, I conceive, as good an illustration of the fact as could be adduced. The operation of ovariotomy, when judiciously applied, in the present day offers as fair a chance of success as most other capital operations of magnitude, provided a judicious selection of the cases be made; and there is no excuse now for gross errors being committed in diagnosis; there are ample sources of knowledge from which information may be obtained to direct the practitioner and to secure the safety of the patient. I regard the operation with pride as an offspring of British genius, cultivated by British industry, and, above all, as being beneficial to mankind. First suggested by William Hunter—performed in Scotland, in 1823, by Lizars—attempted by Grenville, in London, in 1827—and successfully performed, in 1836, by Mr. Jefferson, of Framlingham. Until 1858 ovariotomy was at a very low ebb in London, when some active spirits took up the subject in a true practical light; and here the name of Mr. Spencer Wells must ever stand most prominently forward as associated with the restoration of the operation to its legitimate place, now recognized in operative surgery; and the manner in which he has handled the subject secures for him, likewise, the enviable position of being considered a scientific observer, a bold operator, and a most reliable authority. I fear greatly, however, there is a recklessness (and it is deeply to be deplored) about the selection of the cases operated upon, as if rather a panting after the achievement dulled and silenced the warnings of better judgment; by some it may be said I speak too plainly; but the statistics of recorded cases bear me out in this warning appeal, be it ever so unpalatable. I have watched with anxious care the progress of this operation, and with exultation the steady, good, and truthful reports given us by some, whilst by others the mixed-up cases, heterogenous, bringing with them nothing but uncertainty, and only affording evidence either of negligence in examination, ignorance in diagnosis, or rashness in proceeding. I would sum up my views on the matter in this way:—

A brilliant, rapid operation is very important, greatly to be admired, and most commendable; but the cautious selection of the case—the careful, judicious after-treatment—the attention to minor details, &c., &c., are never to be forgotten; these alone secure *success*, and *that result* should alone confer distinction or honour upon the operator.

I shall now detail two cases (the only instances in which I

performed ovariotomy) illustrative of my views upon the mode of operation, after-management, &c., and lay down a few deductions relative to the most important and disputed points in connexion with this great operation.

Case I.—*Enormous Bilocular Ovarian Tumour; Operation by Excision; Perfect Recovery.*—Jane Goodwin, aged twenty-four years, a milliner by occupation, single, admitted to Mercer's Hospital March, 1865, with ovarian tumour of enormous size. She stated that up to three years and a-half before her admission her general health was excellent; the catamenia were regular, having first appeared when she was fifteen years of age. As to the commencement of the disease which now oppressed her, she first perceived a slight swelling at the lower part of the abdomen, but could not accurately localize it more to the left than the right side; there was at this early indication an absence of pain, yet usually present a sense of constriction or tightness, from the pressure of her clothes, as if fastened too closely; still it is remarkable that this sensation would disappear during the period of her monthly illness, while on its subsidence the feeling of distension would return in a mitigated form, or its arrest be entirely restored. The swelling gradually increased in about four months after these symptoms were first complained of, and then began gradually to assume a definite form, and about the size of a small melon, somewhat more oblong in its oblique and vertical axes, and situated to the right of the umbilicus in its prominent part; otherwise it might be said to hold a mesial position. The patient at this time, when in the erect posture, on looking down upon the abdomen could clearly discriminate the increased prominence of its walls in projection about three inches, and to such an extent as to make the space between the left iliac fossa and umbilicus quite depressed. On the patient handling the tumour at this time she could press it downwards and somewhat to the left side; into the same locality it would also descend or fall when the patient lay upon her left side either for repose or sleep; she avoided lying on the right side as the tumour's weight was more oppressively felt, and if she endeavoured to maintain this position for more than a few minutes pain quickly supervened, as if some force was dragging down the parts from within her left side.

During the incipient growth of the tumour she constantly felt a burning disagreeable sensation throughout the abdomen, but never acute pain; neither was there nausea or sickness present when the

stomach was empty; but occasionally, after eating, a loathing and disgust even at the idea of a repetition of the meal; occasionally she suffered from weakness, palpitation of the heart, and general uneasiness in its region. When suffering for about eight months she was fully as large as a pregnant woman at the ninth month; and, from the gradual growth and increase of size, and attendant symptoms, in fact she was pronounced to be in that condition; however, on more careful examination the true nature of the affection was arrived at. Shortly after this the constitutional symptoms assumed a far more severe type—from the weight and dragging of the tumour the greatest fatigue and lassitude were occasioned; from the compression of the abdominal viscera great disquietude, apprehension of suffocation, sickness, and vomiting were occasioned; the normal action of the intestinal tube was dulled and arrested, so that obstinate constipation was present, lasting frequently for a fortnight, and then only relieved by active and drastic purgatives; the secretion of urine was small, micturition painful, and accomplished with great difficulty. She was compelled to remain in bed for the three months previous to her admission to hospital, owing to an indescribable sensation of weakness, as if she was dying, whenever she attempted to assume the upright position, or make the slightest effort to walk. On the date mentioned she was admitted to hospital, and a more careworn, dying, wretched-looking creature was never the recipient of its mercy. This young woman (only twenty-four) was haggard, thinned, bearing on her emaciated features all the traces of her past and present suffering. The face was livid, the lips purple, from congested circulation; the absorption of every particle of fat about the face impressed upon it the pinched and wrinkled stamp of advanced age; and from the same cause the eyes were lax and ill-supported in their sockets, sunken, while their expression, brilliancy, and power were more effective, dazzling, and unnatural; there is an expression of eye in this affection which I have recognized often, and which I have not observed in other diseases. The emaciation of the whole body, except the abdomen, was extreme; the face, the thorax, the back, the extremities, were reduced to mere skin and bone; yet the abdominal walls on the lateral regions were thick, well covered with fat, while in front the deposit was far more limited, and more particularly so from a little above the umbilicus downwards to the pubis; indeed here the tumour seemed to be most prominent in a very marked way. The measurements of the body, as will presently be seen, were

enormous—distinctive evidence accounting for the oppressed breathing, the oft-times-felt strangling suffocation, the unwearied restlessness to obtain relief from position. The measurements of the body were very accurately taken; the girth at the umbilical level was four feet eleven inches, from the ensiform cartilage to the umbilicus seventeen inches, and from the umbilicus to the symphysis seven inches; from the right anterior superior spine of the ilium to the umbilicus fifteen inches, and from the left anterior inferior spine of the ilium to the umbilicus fourteen inches three-quarters.—(See Plate I., taken from a photograph before operation, and which gives an admirable likeness of the patient.) On balancing the abdomen from side to side between the hands the entire moved in one solid mass; by percussion of the tumour in front, above and below, it was dull; by percussion of the tumour on either side, two-thirds of its lateral walls from before backwards, were dull, while the posterior third was clear, tympanitic—clear indication of the course of the intestines in their normal site; no hard or solid matter could be detected as laid down in this abnormal deposit. Palpation of the tumour from side to side gave evidence of fluid—fluid undulating with but little intervening partitions; succussion of the tumour gave the undulating shock characteristic of the fluid contents; this conclusion must be taken with the limitation assigned; it was a succussion produced rather by the rapid movement of the tumour in its peritoneal envelopes than of the fluid within the strained, tightened ovarian cysts; yet to the educated hand each is divisible, limited, and clear; the entire tumour seemed movable, painless on general motion, but acutely sensitive if leant upon in centre, when tendency to vomiting was rapid, uncontrollable, and produced; pain, too, was deeply complained of by pressure exerted over the left iliac region.

This young woman was a virgin, and on examination per vaginam the uterus was movable; the walls of the abdomen, though greatly strained, yet were traced by numerous large venous trunks, loaded by anastamosing capillaries, and large emunctories in their course upwards towards the heart—no doubt the blood from the deeper parts, owing to mechanical obstacles within; retarding it in its onward flow; thus driven to the surface it enlarged this compensating chain of vessels scattered superficially, and so enlarged, distended gave characteristic specialty to the vascular distribution.

On the patient's admission to hospital every means possible was had recourse to, to try and restore some quiet, some repose of body,

and mind; in spite of every effort, every means, all precaution, the occasional vomiting came on; the nausea, and depression, and loathing of food was persistent; the rapid, fluttering, irregular pulse was marked, with occasional tendency to weakness and to faint; the terror at approaching drowsiness or sleep, lest death should follow—the pain, the weariness, and fatigue of constrained position—the occasional cramps and terrible pain from constipated bowels, protrusion and constriction of the gut, and the agony created from inability to empty an over-distended bladder, combined to create such an aggregate of suffering that she strenuously urged the execution of any operation which would afford even a remote chance of relief from the most excruciating combination of morbid circumstances. After careful consideration of the case in all its bearings, in conjunction with my colleagues, I came to the conclusion that it was one which afforded every chance of recovery by operation; and on the morning of the 15th of April I operated after the following manner:—

The patient, previous to her being removed from the ward, was clothed in flannels—drawers, jacket, stockings; the vesical contents were drawn off, and a large sheet of waterproof cloth, with an oval hole cut in it, and so adapted to the prominent abdomen as to leave exposed its forepart and sides; for two inches deep around the margin of the aperture adhesive plaster was laid on, so that the entire circumference of the opening lay strictly adherent to the skin, and by this arrangement the flannel clothing was protected from ascitic fluid or blood. The patient was then brought into the theatre of the hospital, and placed upon the ordinary operating table; she was so arranged that the legs could hang over the end of the table and the feet rest upon a shelf or support, elevated to the required height; the body being enormously tense, distended, and the respiration a good deal embarrassed, not only from the ascent of the diaphragm by pressure from below, but likewise from the impeded functions of the intercostal muscles, owing to their being put upon the stretch and maintained so; while the lower set of muscles those in connexion with the false ribs were almost paralyzed from the strain put upon them by the eversion, almost dislocation, of their cartilaginous extremities. The patient then was allowed to assume as elevated a position for the head, neck, and chest, not only as consonant with what was required to be done, but primarily as securing a free respiration, at least as unembarrassed as it could possibly be secured in the recumbent position. Chloroform was

then administered, and the patient in a short time rendered insensible. Standing in front of the patient, and on the right side, I commenced an incision at a point about an inch below the umbilicus, in the centre of the linea alba, and carried it directly downwards for four inches; the integuments, the fat, the superficial fascia were all divided by this sweep of the knife, from the point where the knife was first laid on, to that from which it was lifted off, the linea alba was laid perfectly bare; from this extensive gash the bleeding was but feeble, requiring no special care. The next step in the operation was to divide the linea alba; to effect this in the most satisfactory manner a slight vertical stroke of the knife was made at the junction of the two upper thirds and the lower third of the part exposed, because most bulging and prominent; the wound was not larger than that which would admit an ordinary director; this instrument being passed first upwards beneath the fibrous membrane, and resting upon the peritoneum, the strained bands were divided to the very upper angle of the wound; the director was then turned downwards, and the linea alba slit freely upon it to the lowest part of the angle of the external wound; the peritoneal sac presented itself next throughout the long traject of the wound; I had written "*projected* itself," but erased the word, for it was not so; the cellular layer exposed of the serous membrane, lay, as it were, collapsed upon the sac, and required to be pinched up with the forceps; and so, to be safely divided, a small aperture being made in the lifted portion by the knife placed horizontally—just as a hernial sac should be opened—a director was insinuated, and the serous membrane slit upwards and downwards throughout the entire track of the external wound. A small quantity of serous fluid gushed out, and now the whole sac of the ovarian tumour, convex, prominent, blocked the gaping wound. A large trocar projecting from its canula was thrust, canula and all, into the tumour; when up to the hilt a retractive spring withdrew the trocar, and quickly the fluid followed this part of the instrument, until it escaped by an aperture in the canula thus uncovered as the trocar glided out; in connexion with the opening an elastic rubber tube was attached, which conducted the fluid into a bucket beneath the table. As the fluid flowed away a wide flannel tailed bandage was made to encircle the lower ribs, epigastrium, and hypochondriac regions, with gentle, increased, and moderately persistent pressure, so as to compensate for that enforced upon the deep vessels, but now gradually being taken away. As the fluid flowed

out, and as the pressure was steadily made from above downwards, so the sac became more relaxed in the wound; it was grasped by a vulsellum, and gentle traction made upon it in addition to the forces already effective in favouring its delivery; as I gently drew it out from its berth the projecting proportions were sustained in the hands of an assistant; by these gentle means much had come out, but adhesions sufficiently strong required the introduction of my hand to break them down; with care, gentleness, and precision this was accomplished; and now the entire tumour being empty projected from the wound.

The pedicle of the tumour was dealt with in the following way:— It was held up to the light, the most transparent part selected, and a double ligature passed through it; each half of the pedicle was firmly, securely tied with a strong silk ligature and doubly knotted; the double ends of each were left undivided; a very large artery, the size of the radial, was ligatured separately; one ligature was placed again upon the pedicle, about three-quarters of an inch away from the others, a simple ligature around the entire pedicle being firmly secured; then a hot wedge-shaped cautery was applied to the pedicle, between these ligatures, and by a sawing movement was made to sever the substance; and so the tumour was liberated, cast off; blood seemed to flow from the cauterized extremity of the pedicle left behind; the application of a flat cautery to the surface would not stop it; the bleeding was checked by dissecting out from the pedicle a very large artery which was ligatured; the pedicle was then transfixed with a sharp-pointed needle carrying a strong double silk ligature, and each half tied separately with considerable force; the ligature first put on was snipped across, and the pedicle cut away to within a quarter of an inch of the part where the double ligature was applied; the large artery, with its ligature, hung free from the rest; the ligatures were next brought out of the wound and carefully protected. Not a drop of blood got into the abdominal cavity; therefore no sponging or slopping. The lips of this deep wound were then brought together by four points of interrupted suture; a long needle, slightly curved at the point, readily passed the strong silk cord through peritoneum and all structures to the surface, and so the four were inserted; the ligatures of the pedicle and large artery within it were brought out about the centre of the wound, so that two of the deep sutures lay above them and two below; each of these cords were tied in turn, with the full apposition of the cut surfaces one to the other. Such

being accomplished, five *superficial* sutures, silver wire, were inserted in the intermediate spaces, and so the entire wound, deep and superficial, was accurately adjusted, cut surface to cut surface. The waterproof cloth was now removed, and efficiently it protected the patient's flannel dress from the least wet. Large compresses of lint were laid at either side of the wound, and drawn towards each other by wide adhesive straps passed from one side of the abdomen to the other, affording very gentle equable pressure; a few folds of French wadding was placed over all, and retained in position by a many-tailed flannel bandage applied evenly from the pubis to the ensiform cartilage, and with an amount of support agreeable to the patient and protective of the parts within; the flannel drawers and jacket were next closed, and the patient, lifted horizontally from the table, was taken from the theatre to a small ward attached to it, and for the reception of patients after operation, and placed in bed upon a hair mattrass. The bed had been previously thoroughly warmed with several jars containing boiling water, and the temperature of the room was moderate and refreshing; as she was placed upon her back the head was only slightly raised, and a pillow was placed beneath the hams, so as moderately to relax the thighs and legs; the hot jars, guarded with flannel bags, four on either side, were then placed close to the patient, and two to the feet, while a few coils of India rubber tubing, filled with hot water, were placed over the thorax, under the arms, around and upon the abdomen. During the greater portion of this time the patient lay under the influence of chloroform; and certainly nothing could be more satisfactory than its tranquilizing influence; from the beginning to the end she lay in a calm quiet sleep; on having recovered consciousness she had no remembrance of the operation, and did not suffer the least pain. Pulse being weak, ordered a table-spoonful of brandy and hot water every second hour, with five drops of Battley.

5 p.m.—Has rallied well since morning; skin perspiring freely; patient vomited several times, which I attributed to the chloroform. Stomach quieted by half a tumbler of hot brandy punch and twenty drops of Battley. Complained of pain also in the wound for two hours after the operation, but it gradually subsided, and at the hour visited was quite free from it. Vesical contents drawn off, full in quantity; ordered to be done every sixth hour. Jars to be renewed every five hours.

16th.—Slept well during the night; complained of heavy pain

below ensiform cartilage. Drew aside the bandage and applied a piece of lint damped with turpentine, which quickly removed it. Pulse good, 92; renal secretion abundant. Chicken broth, beef-tea, and two ounces of brandy, with water, to be given in small repeated quantities.

18th.—Slept well; no pain; pulse 90. To continue everything as on yesterday.

19th.—Had a quiet night; refreshing sleep; no pain; pulse 88. Looked to the wound; no redness about it—no angry discolouration—no pain on gentle pressure; edges united throughout, except the track through which the deep ligatures of the pedicle pass. Cut across the silken sutures, and removed each, beginning from above; the wound seemed as firm as ever after. Applied adhesive straps, compresses, French wadding, &c., as before, and again supported all with the many-tailed flannel bandage. Food; brandy to be continued. Administered a full turpentine enema, which acted most efficiently.

25th—Went on most favourably up to this date, the symptoms and treatment being almost a repetition of what preceded; but on this day the patient complained of sense of oppression and sinking, deep pain across the stomach, and beneath the prominent ribs in the right and left hypochondriac region. She was blistered rapidly by the acetum lyttæ, and immediately after a warm linseed-meal poultice was applied, and full doses of chlorodyne given every third hour with entire relief. Wound discharging at the side of the pedicle ligature in small quantity, and matter healthy; no pain on pressure in its vicinity. Removed now the silver sutures; they effected their purposes in bringing about perfect adhesion, and seemed perfectly innocuous to the surfaces they gripped; being no longer required, taken away.

27th.—Sleeps well; no pain in abdomen or chest; pulse 86; soft compressible; skin natural; removed jars altogether. Nourishment—chicken broth; beef-tea—taken abundantly.

The patient rapidly gained strength, and proceeded most favourably; still confined to bed; and it was not until the 26th of May the ligatures of the pedicle came away, at 10 a.m., forty-one days after their application. Though for many days before, when I visited the patient, I twisted round and round, forcibly, the cords, and made gentle traction at the same time upon them, yet not until the above date, when practising this manipulation in them, did they show the slightest tendency to come away; no blood followed their removal,

PLATE II

Mr Butcher on Ovariotomy and the after treatment of the patient

J.Lewis Lith Dublin

and in four days after the track in which they passed was shut up, permanently obliterated, and the skin healed; still I confined the patient to bed for another fortnight, to make sure that no irritation should be got up, by too early exertion, in the newly united parts. During this repose, it was truly astonishing to observe the amendment in the girl's appearance. At this time, too, the catamenia appeared, showing that the remaining ovary was perfectly healthy, and affording indication of its functions. Soon after this the young woman was up and walking about, day after day gaining strength and flesh. No better instance could be adduced, I conceive, to illustrate the power of modern surgery to save, than that which I have but feebly described, yet with all truthfulness have endeavoured to map out. Who that had seen her, the poor, emaciated, sunken, dying creature, could have believed she was yet within the grasp of surgery, and to be rescued? Who that had seen her, unable to move at all, owing to oppression from the great morbid product, without a succession of faintings, would not wonder at the art that rescued and saved her, and restored her to her present condition, one of symmetry, activity, health, and usefulness.—(See Plate II., taken from a beautiful photograph, by Robinson, after the patient left the hospital.) I am happy to say that this young creature is now competent to follow her ordinary occupation, and has recently been enabled to accept the management of her special department in a large establishment.

Case II.—*Enormous Unilocular Ovarian Tumour; Operation by Excision; Perfect Recovery.*—The following case is most interesting in all its details, and speaks loudly in favour of the operation. I was called upon by Dr. Churchill, August 18th, 1865, to see a lady, with him, labouring under ovarian disease. The patient was unmarried, aged thirty-eight, of dark complexion, and a sufferer for more than ten years. At first the tumour was gradual in its increase, then rather stationary for months, then increasing with great rapidity, while then for three years it made steady, slow progress, attended by some pain in the right iliac region, but not sufficient to prevent exercise, or excursions of pleasure into the country. During the last two years the rapidity of growth was most remarkable, and commenced with most acute pain towards the right of the umbilicus, and two inches lower when taking a long walk; from this time the growth rapidly increased up to the period of consultation. On seeing the patient

on the above date her condition was as follows:—She was a haggard, wretched, pallid, emaciated creature, oppressed to the severest degree in the respiratory and circulating systems; pulse labouring in its thready beat, and 120 in its minute number; catamenia stopped for several years. On examination of the abdomen an enormous globular swelling presented itself; the girth at the most prominent part at the umbilical level being four feet eight inches; from the ensiform cartilage to the umbilicus, fifteen inches and a half; from the umbilicus to symphisis, six inches and a half; from the right anterior superior spine of the ilium to the umbilicus, eleven inches and a half; and from the right anterior superior spine of the ilium to the umbilicus, eleven inches and a half; and from the same point on the left side to umbilicus, thirteen inches and a half. On percussion over the entire front and sides of the tumour a dull sound was given; and on palpation of the tumour a distinct undulating wave was transmitted, when struck either laterally or in the vertical axis; on percussion towards the posterior walls of the tumour a tympanitic sound was elicited on either side, diagnostic of the locality of the regional bowel; on examination, *per vaginam*, uterus free. On the manipulation of the tumour no evidence of adhesion could be discovered; and on the balancing, percussion and succussion of the tumour, no solid material could be discovered in its volume. In consultation with Drs. Beatty and Churchill, the case was considered suitable for operation, and on the morning of the 20th August, at 11 o'clock, I performed the operation, assisted by those gentlemen. Indeed there is but little deviation from the course which I pursued in the case of Goodwin. The patient was placed upon a table of convenient height, and supported as nearly as possible in the position most subversive of increased oppression or difficulty in respiration; to secure this the head, the shoulders, and the loins were gradually supported with pillows, and the legs permitted to hang over the end of the table and rest upon a chair. Dr. Gordon then administered chloroform, and brought the patient, without a struggle, calmly under its influence, and the waterproof sheet, with a hole cut in it, stuck upon the lateral walls of the abdomen, leaving all that was required revealed, and insuring the flannel dress in which the patient was clothed, as in the former case, from being soiled or wetted. Standing on the right side of the patient, I commenced the first incision one inch and a half below the umbilicus, in the centre of the linea alba, dipping the point of the instrument deep, so as to come down at once upon that structure; it was continued downwards for nearly three inches, the same

weight upon the knife, so as to perfect the section down to the lowest angle of the wound; it will at once be recognized that in this stroke of the knife the skin, the fat, and the superficial fascia, were cut through. In this instance it was most remarkable the abundant supply of fat on the abdominal walls, while the rest of the body and extremities were wasted to the lowest degree. The depth of the wound throughout, from angle to angle, was fully two inches and a half. The linea alba being exposed, a small opening was made in it, and a director introduced, first upwards, and the structure freely divided to the point corresponding to where the knife was first laid on the integument; the instrument was next turned downwards, and the division of the part accomplished to a like extent; the peritoneum next appeared, was taken up in a forceps, a small opening made into it, according to the rules I have before expressed, and freely divided to an extent perfectly equivalent with the first incision. I may mention here, on the division of the peritoneum, towards the upper angle of the wound, a considerable artery was divided; this was carefully, and at once, ligatured. The ovarian cyst next appeared, so different in its colour, in its structural arrangement, even at a glance, from that in the former case, that no dependence can be made, nor reliance on the supposition, and as it were, the stated aphorism "that once the ovarian cyst is seen it can never be mistaken." I must be permitted to dissent from this saying; in the first case detailed I have stated that the cyst was white, glistening, presenting apparently *considerable consistence;* in this instance, how different; the projecting cyst was a dusky colour, purplish, with congested venous trunks scattered here and there, while a kind of venous ramiform injection seemed to give colouration to the intervening spaces; and yet, with all, the cyst did not present the marked "consistence," as in the first instance recited; a good lesson may here be learned from the colouration of parts; the skilled anatomist and operator will fully estimate the natural structure of parts as he proceeds in his dissection, but he must be equally prepared to recognize the varying changes which morbid influences will exert upon living structures in aberration from health.[a] The sac being arrived at, the trocar used in the former

[a] In this case how serious would have been the consequences if the patient had been submitted to the ordinary operation of tapping; in all likelihood a fatal termination by hemorrhage. Experience and statistics go to prove that tapping an ovarian cyst is by no means free from peril, peritoneal inflammation sometimes rapidly setting in, and quickly destroying life; while death by hemorrhage, in the manner I have adverted to, must offer another objection to its being lightly undertaken.

case was plunged into the tumour, and quickly the fluid flowed through the India-rubber tubing into the bucket for its reception; as it moved away, gentle compression was exerted from above, and laterally, by a few turns of a flannel roller; and the sac was grasped with a vulsellum, and steadily, forcibly, drawn, as its contents diminished, and twice with very considerable force as adhesion restrained for a few moments its onward traject; yet by pressure from above, by gentle, steady, yet forcible traction on the tumour, these adhesions, though firm, yielded gradually, and without consequent hemorrhage; and the entire tumour was delivered, there being no solid matter in it, by this very small opening; so well did the fluid escape, not a portion of it, or blood either, got into the peritoneal cavity; and so this enormous pendulous sac hung supported without the abdominal cavity, its pedicle absolutely filling the small wound through which it was extracted. The tumour was held up, and the pedicle elevated and put upon the stretch in its transverse axis, and so its constituents were clearly revealed by the light; at least a transparent line marked its division into somewhat unequal portions, the right somewhat larger than the left; yet it afforded practical information as to where the part should be transfixed *innocuously*—a momentous point, *as it is known some patients have perished by internal bleeding, by a wound of some large nutrient vessel, by the sharp instrument conveying the cord;* again, I repeat, by the precaution adopted in both these cases of mine, as subjected to the light test, so unfortunate a consummation can be averted and avoided. A double silken ligature here was placed through the transparent part of the pedicle, its loop divided, and each portion tied with the greatest tightness, and doubly knotted; the double ends were left out of the wound until a saving ligature was thrown on the pedicle, which was extremely short, about three quarters of an inch away, and nearer to the tumour. I then severed the pedicle between those ligatures, as close as I could safely go to those which were to remain behind; not the slightest oozing occurred; by careful section the part was divided, and the tumour separated from the body; the ligatures of the pedicle were then closely clipped to the knots, and the part left at rest. The left ovary was lifted up, carefully examined, and pronounced healthy. The India-rubber covering being taken away, the wound was adjusted, as in the former case, by deep and superficial interrupted suture; the deep, of silk cord, four points in all, carried through the abdominal wall and peritoneum, and tied upon

the surface; the superficial, of silver wire, three points in number, twisted upon the surface, and so fastened; adhesive straps, pads, compresses, both of lint and cotton wool, arranged and secured by the many-tailed flannel bandage, just as in the case first detailed; and so likewise, the adjustment of the patient in bed, as to position, and the application of heat to the surface of the body, both by jars and tubing. The patient rapidly rallied from the influence of the chloroform, and was not conscious of having suffered pain. She took some wine and water, and then went off into a quiet sleep. At 3 p.m., gave a full opiate, as she became a little restless; at 9 p.m., reaction fully established; pulse 100; skin freely perspiring. To have chicken broth in small quantities through the night, and occasionally a tablespoonful of weak brandy and water. I am happy to say she had no vomiting, which so frequently sets in after the free exhibition of chloroform. Vesical contents drawn off every sixth hour, and full in quantity.

August 21st.—Had some sleep; yet restless, and talking violently; pulse 100; skin moist; the bottles being renewed regularly every four hours. Ordered draughts containing Battley and chlorodyne, in large doses, every third hour; the chicken broth and weak brandy and water to be continued as the force of the heart's action still depressed. 9 p.m.—Quieter; had some sleep; countenance not so anxious or distressed. To continue nutriment, and stimulants, and draughts through the night.

August 22nd, 9 a.m.—Was restless towards morning and wandering a good deal in her mind, attended with a good deal of excitement; surface of body moist; pulse, 96, a little hard; complains of pain in the wound on filling the chest by a deep inspiration; sickness also of stomach; wound, on being exposed, looks well, but tenderness on slightest pressure around it; ordered a grain of calomel and a grain of powdered opium every second hour; beef-tea in small quantities every third hour.

3 p.m.—Pulse, 94, somewhat softer than in the morning; renal secretion copious, and removed at the intervals already mentioned.

August 23rd.—Still lurking pain about the wound on deep inspiration; pulse yet hard; every third hour. beef-tea, &c.

August 24th.—Restless night; disturbed raving sleep; pulse, 86, yet hard; to continue the pills, one every third hour; beef-tea, arrow-root with port wine; brandy and water.

August 25th.—Slept well; pulse down to 84, soft; skin freely perspiring; *salivation* produced, and so constitutional symptoms

checked, and also the local pain, on deep inspiration, now gone; bowels opened three times freely; stopped the calomel, and ordered a grain of powdered opium every third hour, in pill; beef-tea, arrow-root, and port wine; and brandy and water as before (one glass of brandy in the twelve hours); exposed the wound; no pain about it even on gentle pressure; cut the deep silken sutures, and withdrew them; the wound nearly united throughout; suffered the silver wires to remain; re-applied adhesive straps—compresses as before.

August 26th.—Had a quiet night for a few hours; but at three in the morning called to wait upon her, owing to extreme torture and entire abdomen greatly distended with flatus; vomiting and great attendant depression and sinking; at once put a turpentine stupe on upper part of abdomen over epigastric region; and administered with long tube a full turpentine and oil enema, which brought away a considerable proportion of solid material, and gas in quantity; the tongue was dry, and pulse feeble; ordered brandy, six ounces, in small doses, every second hour; opium to be continued, beef-tea and ice occasionally to relieve the nausea and sickness.

August 27th.—Had some sleep; bowels freely opened again towards morning; pulse reduced in number, soft; skin freely perspiring; no pain, and tympanitis greatly reduced; at 2 p.m. better in every way; had quiet sleep; had partaken freely of hot milk and water, brandy and water; dressed the wound; some slight purulent discharge from lower angle; upper united for two-thirds down; removed the silver wire sutures; parts adherent all about them; some matter issues, upon pressure, through the holes where the deep sutures lay; 9 p.m., bowels moved freely, yet abdomen greatly distended; passed up the long elastic tube and permitted its end to rest in a basin of water; the large quantity of air that escaped was most surprising, reducing perceptibly the distended walls, and affording commensurate relief; to have four ounces of brandy, in water, at intervals, beef-tea in small cupfuls every third hour, and the opium as before, every third hour a grain.

August 28th.—Slept well; bowels well freed; tympanitis down; respiration freer; no pain on full inspiration; no pain over abdomen on pressure; pulse, steady, soft, 96; tongue clean and moist; wound looks well, some matter trickling up through suture wounds; dressed as before; to continue the opium, as the moment suspended, irritability sets in of a fearful character; to continue the stimulants, brandy and water, and the beef-tea, each every second hour.

August 29th.—Suddenly and alarmingly prostrated; pulse, feeble, small; tongue dry, brown; on examining abdomen pressed out a large quantity of the most fetid watery wheyish fluid through the lower ununited part of the wound, deep down in the cavity, and evidently the effused fluid rapidly thrown out on the supervention of inflammation of the peritoneum, but arrested further and then discharged through the wound—fetid, corrupt. The active mercurial and opium treatment arrested the continuance of its secretion, and the constitutional support and management of the patient rescued her from its deleterious consequences; and so, likewise, the local management determining its course and evacuation outwards. Dressing most carefully by pads and well-adjusted pressure, adhesive straps, and tailed flannel bandage; brandy and water freely; port wine and arrow-root; beef-tea and chicken jelly; one or other of these given every second hour, so great was the marked prostration; to repeat the turpentine enema and stupes, the abdomen being distended with flatus, and very painful.

August 30th.—Much the same as on yesterday; to continue everything, stimulants in greater proportion.

September 1st.—Better in every way; had a good night, quiet sleep; pulse, 84, soft, equable; tongue moist; skin freely perspiring; discharge from wound still copious and fetid; belly slack; to have arrow-root and port wine, chicken jelly, brandy and water every second hour; omit now the opium, their being no pain in the vicinity of the wound on pressure or otherwise.

September 3rd.—A very large secretion of most offensive thin purulent matter issued from the wound on pressure and this state was ushered in by restlessness, flushed face, yet all the disorganized secretion readily was evacuated through the lower open angle of the wound; stimulants increased and food as before—as much as could be partaken of.

September 3rd.—Fetid matter diminished and condition of patient improved; to continue stimulants and nutriment.

September 10th. — Had sleep, but flushed (painted cheek); dreamy night; pulse a little accelerated; tongue dry; I suspected something astray near wound, and found towards its upper angle a hard round space about half again as large as a crown-piece, and over it the skin thin and giving evidence, by its condition, of the mischief beneath; I applied over the entire abdomen a large linseed-meal poultice, and with great comfort; this covered with layers of wadding and supported in position by the tailed flannel bandage;

stimulants and nutriment as before—one or other every second hour; thus the drooping powers of life were sustained. By this mode of treatment, local and constitutional, the dangers have been passed over; now, the 14th September, she sleeps well, and followed by refreshment; her pulse is only 74, soft, calm, equable; all flushing heat, and perspiration gone; tongue clean, moist, and of natural size; digestive and urinary organs acting healthily and naturally; the abdomen looks well; discharges small healthy pus, from two points at the upper angle of the wound, rather free still; and at the lower angle thinner in its character, not so satisfactory, and clearly afforded from a source different (probably the peritoneal cavity) from that in the superior region of the wound; a linseed-meal poultice laid over the abdomen night and morning after the matter is gently pressed out; all distress from countenance gone, getting up flesh, and now constantly demanding food.

16th September.—Greatly improved in every respect; tenderness over the abscess gone; all discharges, though very free for the last few days, now greatly diminished, and of the healthiest character; pulse, full, steady, and 74; patient able to turn on either side without the least pain; takes stimulants and food abundantly, and with appetite; wound still dressed with the linseed-meal poultices, and flannel tailed bandage support.

21st.—Has rapidly and steadily improved in general health; pulse 72—soft, natural; appetite excellent; the discharge from the abscess now almost gone, not more than a few drops of serum passed out; the constricting ligature threads have never appeared in the discharge, though cautiously watched for; all constitutional disturbance and local tenderness gone; it is very remarkable with what rapidity the fat is being deposited, and the rotundity of the body restored; but not so surprising as the altered haggard countenance so quickly replaced by one of cheerfulness, exhiliration, and expression. At this moment the patient is most anxious to get up; and if her general appearance and ability to do so was alone considered I am quite certain she is competent to the task; but it should never be forgotten, in those cases, cases of recovery and cure, that extensive adhesions have been set up, created, as being essential in guarding their recovery; now these adhesions, so recently formed, so imperfectly, at this stage, vitalized, may by any rudeness be rapidly disintegrated, broken up, and so giving rise to a train of constitutional symptoms intolerant of restraint, and so becoming fatal; for these reasons, these alone, the patient is

still restricted to bed; however, she sits up in bed for hours during the day, propped and supported by pillows.

On September 30th, the patient was up and walking about, perfectly free from inconvenience. As in the former case, so in this, the rapidity with which power and tone have been restored to the system; the whole countenance and caste of the patient has undergone a marvellous change; the pallid sunken face has resumed its former fulness, cheerfulness, and happy expression; and she who only a few days since was numbered with those on the brink of the grave, is now restored to her family and friends with as good a prospect of lengthened years as any one of them; and so—conservative surgery ever stretches forth its arm to save.

The history of these successful cases, this triumph over disease, otherwise progressive unto death, will, I trust, give more confidence to the timid in the adoption of this saving operation. To the vacillating practitioner I would speak, and remind him that the united testimony of the ablest physicians go to prove that all medicines prove abortive here; and the sooner the operation is performed, when the functions essential to life are impeded and interfered with, the better; I have no hesitation myself in recommending early operation when once the case is truly diagnosed; the earlier, the less chance of adhesions; the earlier, before the reparative powers of life are taxed, the more certainly may be looked for adhesive inflammation; yet, if the tumour be slow in its progress, or as sometimes will be the case, arrested for a time in its development, the surgeon should pause—not meddle or hazard life; again, I think the operation should be deferred during the incipient stage of the disease, as the peritoneum will be intolerant of it; I have no doubt whatever that after the affection subsides for some time, great changes are wrought in the peritoneum, as to its resisting powers of inflammation; it is not nearly so great when the abnormal growth has impressed the influence of its presence upon it for some time; it seems as it were to be gradually dulled in sensibility and active vascular action; in no other way can the violence inflicted by some operators on the membrane, almost with impunity, be accounted for; the tearing through of surface adhesions, the crushing by the écraseur of others more developed either in surface or length; the ligaturing of others, and the clipping away by scissors of some, all point to the same fact that the membrane at this time is spoiled in its sensitive inflammatory idiosyncrasy, so characteristically inherent in all serous membranes.

There are a few points relative to this operation that I would briefly insist upon.

The case being judiciously selected, I am persuaded it is a great error to operate in an over-heated room; the fashion being to exalt the temperature of the apartment far above the ordinary standard, or that adopted for comfort. The first case which I operated upon I brought into the theatre of the hospital, which was just of a comfortable temperature, not being varied a single degree more on this occasion than on other days for ordinary operations; numbers of practitioners and pupils were present, and none complained of the spacious room being hot; I think it is a most important matter affecting the result of the operation that the room should be cool, and hold a large quantity of pure air in it; with full proportions of its constituents for healthily oxygenating the blood; it should never be forgotten that the patient subjected to this operation is to be rendered insensible by chloroform, and probably maintained so for a long time; that when brought into that room she is living on a very imperfect aëration of her blood from mechanical impediments;—the cold body surface, the feeble pulse, the livid lips, all bespeak this condition; is it then reasonable to suppose, under such conditions, that the patient can, with impunity, be refused a due supply of well-oxygenated air; is it to be supposed that the shock of operation, the revival from the congestive effects of the chloroform, will not be grievously, nay, dangerously prolonged by an absence of it.

Next comes the placing and arrangement of the patient on the operating table. The patient should be drawn down towards the end of the table, with her legs hanging over it at right angles with the thighs, and the feet suspended on a shelf drawn out from between the legs of the table, or resting upon a chair cushioned to a suitable elevation; leniency then must be ceded to the patient as to the elevation of her shoulders, neck and head, at the same time due support must be placed beneath the loins; now why do I rest upon these minute particulars? Because, it must be remembered, the patient is struggling with embarrassed respiration, and particularly so when in the recumbent position; she must be allowed to seek the position that will facilitate her obtaining as full a quantity of air as possible at the same time compatible with the surgeon's task; and the necessity for doing so is further enforced, because chloroform has yet to be administered, and its influence impressed in a complicated operation, probably for a long time; from

such circumstances I deprecate the practice of administering the chloroform in an adjacent room to that in which the patient is to be operated on; and then, when insensible, placing her upon the operating table, without knowing how far constrained position is compatible with her safety.

Now as to the steps of the operation. As illustrated by the foregoing cases; an enormous tumour may be removed through a wound of not more than two and a-half or three inches in extent; so the incision should not at first exceed this measurement, commencing at the point referred to below the umbilicus, in the centre of the linea alba, and carried downwards to the prescribed distance; the knife should sink to the same depth from where first laid on to the termination of the incision, and throughout its entire track it should cut through the skin, fat, superficial fascia, down to the linea alba; this structure being brought into view, its most projecting prominent part—and that will be found about the juncture of the lower with the two upper thirds of the line exposed; the fibrous bands should be lifted up with forceps, and a small opening made, the blade of the knife, horizontal to the surface, and division made sufficient to admit a director, which should be slightly curved previous to its introduction; this being well held up to the under surface of the linea alba, the knife pressed upwards along the groove of the director, effectually severs it, so then the director is turned downwards, and the part slit to the lower angle of the wound; the peritoneum next presents itself; this should be cautiously lifted up by a forceps, and the knife horizontally held to the surface, made to cut a small aperture in it, after the manner adopted in opening a hernial sac, as the linea alba was slit from one end to the superficial wound to the other, so likewise should the peritoneal membrane be cut; caution must be adopted in recognizing the peritoneum from the ovarian cyst; for instances have been afforded where the practitioner had presumed he was down upon the cyst when in reality he was outside the peritoneum, and vigorously separating it from the abdominal walls, when he was exulting in the satisfactory way in which he broke the tender adhesions binding the tumour to surrounding structures and neighbouring organs.

From the foregoing cases it will be seen that the colour of the cyst cannot be depended on as diagnostic of its presence; in the first case which I operated on it was of a peculiarly white colour; in the second, turgid, with blood-vessels, venous in their character, and permeating it everywhere; yet it may be relied upon that the

colour of the ovarian cyst, in the large majority of cases, bears a close resemblance and analogy to the colouration first insisted on. In the superficial wound bleeding is not likely to occur; in the division of the peritoneum it is not unlikely that a branch of the epigastric may be cut, as occurred in my second operation; and if so, in either case, the vessel should be ligatured at once. The sac being fairly brought into view throughout the entire extent of the wound in the abdominal wall, the trocar, projecting from its sheath, should be thrust deep in, with decision, up to the hilt, when, the pressure from the trocar being taken off, it recedes, the fluid following it to the opening in the side of the canula, and then, through the India rubber tube there attached, into the bucket for its reception, and placed there previous to the operation being commenced. As the fluid flows away so the sac shows puckering and signs of collapse; then it should be seized with a vulsellum and drawn steadily through the wound, when a small portion of it escapes; pressure, by an assistant, on the abdomen above, by a constricting belt of flannel, very gently, governs its recession in the direction of the wound; and these combined forces, gradually, yet determinedly enforced, will overcome many, and even extensive, surface adhesions; the giving way, the tearing up of the connecting medium will be appreciated and readily recognized by the hand and touch of the surgeon as the sac is being liberated, and the exposed sac delivered will give ocular evidence by being extensively ruffled on the surface; these two points were clearly represented in each of my two cases; therefore I would lay it down, as a rule, *that neither the hand, director, or any other foreign body, should be introduced into the wound to seek for adhesions until the attempt at its delivery be made after the manner I have just described.* I am induced to lay stress upon this point, because, in the second case which I operated upon, very firm adhesions restrained the growth; yet, by determined forcible traction, they gave way in the most satisfactory manner; I am certain that this measure, if carefully put to trial, will be found effective in three-fourths of the cases that may be considered suitable for operation; if not, why no harm has been done; and then the wound can be enlarged, the adhesions sought for and liberated, either by rupture of them by gentle tearing, division of them by the écraseur, ligaturing of them by silver wire, and then cutting external to the pedicle secured; if hemorrhage occurs after either of those measures, a touch of a heated flat cautery will restrain it; or a pledget of lint, soaked in a

saturated solution of perchloride of iron, held for a few seconds to the weeping surface will be effectual in restraining it; if a large vessel should yield blood it should be tied with a thin silver wire thread; if the sac in any one part should be found, as it were, fused into the surface of a vital organ, it would be well not to use any rash violence, but, when the sac was entirely emptied of its contents, leave the adherent portion behind, and clip away the rest; by this method no risk or serious mischief would be inflicted. The tumour being delivered, and sustained in the hands of an assistant, the important question comes—that of dealing with the pedicle; great variety of opinion prevails on this point; and I do not think it is to be wondered at, as the recorded experience and testimony of many go to prove that the constituents of the pedicle are subject to much variety in thickness, massiveness, and vascularity, as, likewise, in its length—in some being short and truncated, in others attaining to four or five inches; in the first case which I operated upon the pedicle was somewhat more than two inches and a-half in length, and very thick and massive; as a temporary measure I applied a ligature close to the root of the pedicle, and another far away, and then, with a wedge-shaped cautery heated to the proper temperature, cut steadily through its component parts; yet, though the pedicle was tied pretty tightly, blood rapidly flowed—pure, bright, arterial blood; then the pedicle was held up to the light, and a large artery dissected away and ligatured—that which the cautery could not control; the remaining portion of the pedicle, being held up to the light, was sufficiently transparent in some places as to exhibit where the sharp instrument might be introduced, conducting the double ligature, without the least risk of transfixion or division of a vessel; thus the pedicle, being divided into portions, permitted the cord to effectually strangle each included part, and so secure its certain death; for, it should be remembered, if the part included in the ligature is too thick, the counteracting force will not be efficient to secure its death, and after a few hours the ligature becomes lax, and hemorrhage may occur from some vessel not occluded in the centre of the part embraced; the ligatures securing the split pedicle, as well as that upon the large artery, were brought out through the wound, perfectly lax, no dragging on the pedicle, and were not cast loose for many days; yet very little discharge followed in their track.

In the second case which I have detailed the pedicle was very short; and, though thick when taken up, yet could be spread out,

held up to the light, and made transparent in some places—and, further, even divulging the passage of the blood-vessels, large and numerous; here the pedicle was transfixed, in a suitable position, with a sharp-pointed eyed needle, in a handle, conveying a strong double silk ligature; each half of the pedicle was fairly and tightly strangled with great force; then a ligature was placed round the pedicle, nearer to the tumour, and section made close to the double ligature; and so the abnormal growth was severed from the body; not a drop of blood oozed from the constricted pedicle; in this instance both ends of each ligature were clipped close to the knots, and the constricted parts suffered to retract and be at rest. Though abscess formed in the vicinity of the pedicle, with hard firm cyst, and liberating its contents through the middle of the wound, yet these ligatures never appeared, though carefully watched for in the discharge, and all healed up within a month.

From the first case it would follow, when the vascular supply is through large channels, the cautery cannot be depended on, and the ligature, to be effectual, must strangle the pedicle, if thick, in portions; it might be argued, too, that the track of the ligatures externally directed secretions with safety from within. In the second case, where the pedicle was strangled in portions, and the ligatures clipped close to the knots, though a small abscess formed, yet it was obliterated, and the wound healed as rapidly as in the first case. I am convinced the surgeon who rests on one plan will not be as successful in his practice as the man who adapts his measures to the peculiarities of the case as revealed in his procedure. No doubt, if a number of small vessels pass through the pedicle for supply and distribution to the tumour, I admit the hot iron may be competent to sear up and close their divided mouths; but I deny its power to close with security larger vessels; it was incompetent to do so, though applied at the proper heat, slowly and cautiously, in the first of my cases; and, on examination of the preparation lodged in the Museum of the Royal College of Surgeons, a solution of the difficulty in its doing so is at once revealed. By the ability of Dr. Barker, curator of the museum, this specimen has been prepared; it is most beautifully injected, and distended to its full proportions; the vessels are as large nearly as the little finger; then, would it not be futile to depend upon cauterization here? Now, in my second case the pedicle was very short, and seemed a congeries of large vessels; and it was with difficulty, when held up to the light, to secure a point for the sharp ligature-conducting

needle to transfix with immunity; neither in this instance do I think the cautery would have been effectually preservative; and the vascularity of the sac—dark, turgid, and unnatural to its kind—is an evidence of the multitudinous vessels which sprung from the pedicle supply; this beautiful preparation is also lodged in the college. I do not think the cautery should be depended on as a sufficient preservative in these cases; it may have succeeded in instances where the vascular supply was small, and given grounds for confidence; but I must enter my protest against the practice when the vessels are large. Now, I do not wish to disparage the power of the cautery; I use it extensively every week; and in all those cases where the pedicle is ligatured piecemeal I would recommend the appliance of a quick brush of the cautery over the cut surface; I have found its application in this way most serviceable after excision of the upper jaw, and other severe measures, in arresting unhealthy forms of inflammation, diffuse or erysepelatous, and arousing at once a reparative inflammation; and it is my opinion its judicious application to the cut surface of the pedicle would be followed by a like success. I would reiterate here, in proportion to the bulk of the pedicle it must be ligatured in two, three, or even four portions, so that each constricted part shall surely die; the little noose or knot of silk will find its own escape. Strong silver wire may be substituted as innocuous to surrounding parts. Now, as to the practice of bringing the pedicle out through the wound, and retaining it there by ligature or by clamp, no matter how well devised, it is needless to dwell upon. Any traction or straining upon the strangled part must be productive of mischief. I admit the inconveniences set up by such practices may sometimes, by prompt, judicious treatment, be stifled and subdued, and then a false impression is arrived at as to the salutary influence of the measure. If the operation is to be fairly carried out according to my views, the pedicle, when once protected from hemorrhage, by either cautery or ligature, must be unrestrained, at rest, relaxed. As to the dressing of the wound, the mode I adopted in both the foregoing cases was the same—interrupted suture, deep and superficial, the deep stitches including the peritoneum; the deep traversed by silken cord, the superficial by silver wire; each acted admirably in sustaining together cut surface to cut surface, even almost to the perfect union of the entire extent of the wound; yet I was not satisfied with the reception of the silken cords in their long transit; small abscesses formed in the track of each, lymph boundaries

fortunately limiting them; yet, though safely walled in, creating distress and a remarkable amount of discharge; in the course of the silver wires there was no hardness, no lymph walls, no discharge. I shall in all other cases treat the wound on the same principles which I have advised for that in the operation of hare-lip; the needles, of course, must be made considerably longer, firmer, and thicker; but they should be constructed in the same relative proportions, their points triangularly shaped, and the opposite extremity blunted; the same rules, too, should regulate their introduction and transfixion of the abdominal wall; in proportion to the thickness so likewise farther away from the cut surface should the needle be entered, and then made to travel, from left to right, down to the peritoneum, and then its point appearing should be made to strike the right or opposite side, at a corresponding point as to arrangement of tissues, and, being pushed onwards, it appears through the skin at a distance from the wound equal to the point of entrance; the number must be according to the length of the wound; the distance between each should not exceed three-quarters of an inch; the walls of the abdomen being so relaxed, the edges of the wound can be brought, with facility, easily in contact by gentle pressure; and then the silken cord being thrown round the needle, in the figure of eight form, will prevent the slightest retraction; each needle must have its silken cord, irrespective of the one above or below, and so all puckering of the wound and undue tension on the needles be guarded against. I am convinced this is the most rational way of dressing the wound; it secures the surfaces (even in their deepest track) throughout in contact, and it excludes from injury by puncture the peritoneum. As to the superficial dressings—adhesive straps, tailed flannel bandages, &c., their arrangement has been already laid down.

Now as to the after-management of the patient. The sickness and vomiting which so frequently sets in after chloroform, though preceded by no food for hours before its administration, yet is sometimes very distressing; it will be best subdued by a warm stimulant—nothing better than half a tumbler of hot brandy punch—after which hydrocyanic acid, in three-drop doses, will act as a specific. In these cases I think it is a great error to keep the patient low; moderate stimulants and supporting nutriment—beef-tea should be given from the first in small repeated doses—cold brandy and water; ice to suck constantly to moisten the dry mouth, so intolerable after the chloroform, and persistent from the deranged sunken

condition of the patient before the operation. In addition, the temperature of the patient must be watched; the hot jars constantly renewed, for as yet the shocked system and feeble low respiration have no power to generate heat; thus the urgency of its artificial supply; likewise, the full supply of pure oxygenated air to revivify the blood, and so impart tone to the nervous centres, is absolutely demanded. If the surgeon's work throughout the early steps of the operation be carefully and efficiently performed he has no dangers to apprehend as consequent upon them—no likelihood of hemorrhage. The great danger which looms in the distance, even from the moment when the knife was first laid on, is inflammation—inflammation of the skin of an erysipelatous character, as I have seen from other wounds of the abdominal parietes—inflammation of the deeper tissues, of a diffuse character, as I have often witnessed—inflammation of the peritoneal membrane, as admitted and recorded to be so frequently the cause of death after this special operation. Peritonitis should be carefully watched, for here it is very insidious, owing to the low condition of the vital powers of the patient; pressure over the abdomen will not afford the earliest evidence of its presence; neither will the pulse tell; the respiration of the patient can be made by interrogations, the best exponent; if, on being asked to fill the chest, the patient complains of uneasiness, of pain in the wound or its vicinity, the practitioner may take the alarm; then, if pressure be made deep around the wound, soreness will be complained of; there may be no sickness of stomach to indicate this first, this early mischief; and the pulse is no safe guide; the pulse is quite deceptive; and, if depended on, will lull the practitioner into false security; once awakened the symptoms soon unmask themselves, and then the life of the patient is really in jeopardy. The question that suggests itself is of vital importance now; upon the judgment and decision of the surgeon the only hope of the patient's salvation rests; is the patient to be bled? some laud it beyond measure; I say it increases the chances of death; some may endeavour to make a division of the type of inflammation here, and call that which early occurs acute, and that at a farther off period typhoid; but this is an erroneous separation of the results of diseased action; the early peritoneal inflammation is asthenic; the late form is asthenic too, and but the evidence of complication of the worst kind of blood-poisoning; in either the taking away of blood is a deprivation of a part of the life that remains. The whole reliance of the practitioner here must rest upon the power of calomel and opium—

calomel in grain doses, with a grain of powdered opium, every second hour, with stimulants and nutriment; brandy and cold water every second hour to wash down the pills, and beef-tea every third hour in small cupfuls. The whole inflammatory action here is low, rapid, and destructive; therefore the imperative demand for stimulants to support the flagging powers of life until specifics have time to determine their influence.

The second case which I have described affords a good lesson of what should be done when life is urgently threatened by this peritoneal affection; here the disease seized on the part, prostrated its victim, as if stricken with the lowest typhus; by rapid exhibition of calomel and opium, by the abundant exhibition of stimulants, the disease, after a little time, was checked, and finally arrested, not however until the second act of inflammatory process was accomplished, but it was arrested even now by the persistent exhibition of the calomel and opium; the exhibition of the opium was long persevered in, even in large doses, when the calomel was discontinued after its specific action had been gently established. The inflated and painful condition of the abdomen was relieved by large turpentine enemata delivered through the long tube, turpentine applied on lint over the epigastric region, and warm linseed-meal poultices over the wound and iliac regions; shortly the adhesive lymph binding the lower angle of the wound gave way and out gushed a large quantity of pent up horridly offensive fluid, the result of the inflammatory mischief that threatened life, from day to day the discharge diminished and lastly purulent matter alone came away, of a healthy character, this, too, gradually ceased, and the wound healed. I trust, in the history of these cases, I have grouped the facts so as to present them in the most attractive form; I know I have omitted nothing that could be looked on as clinical in their instruction and teaching, and I trust, as I foreshadowed in the beginning, that the glorious result obtained in both instances—the saving of life, the restoration to health—will give confidence to the vacillating and to others in the prosecution of this noble operation.

Art. XI.—*Observations on the Epidemic Fever prevailing in Cork.* Read before the County and City of Cork Medical and Surgical Association, by Denis Chas. O'Connor, A.B., M.D., Professor of Practice of Medicine, Queen's College, Cork.

Though it cannot be said that fever has prevailed more in Cork than in other localities, it has never existed as an epidemic in Ireland without making its virulence felt in this city. An admirable description of the disease, as it appeared in this city in the middle of the last century, is to be found in the writings of two eminent Cork physicians—Drs. Rogers and O'Connell. Since the beginning of this century we had a severe visitation in 1802, when the Fever Hospital was founded; afterwards in 1817-18; again in 1826-27. In 1832, Asiatic cholera seemed for a while to have eradicated every other disease, and we had an exemption from fever till 1836-37, when it broke out in a mild form. It re-appeared in 1846, and became intensified in 1847, in consequence of the famine. It was, however, an error to call the fever of that year "famine fever," as the peculiarities attributed to the famine existed the previous year. The famine did not produce the fever; it only rendered a greater number susceptible of its influence. After the subsidence of the epidemic, intermittent fever made its appearance, and as long as it lasted scarcely a case of continued fever was seen. As soon as the last cases of intermittent disappeared, the present epidemic broke out, and still rages with much severity. This alternation of continued and intermittent fever is remarkable. Indeed it might have been observed that the fever of 1847 passed first into a remittent form, and gradually into the intermittent, which prevailed more or less for ten years subsequently.

From this short sketch it is manifest that although fever is more or less indigenous in this country it still appears in an epidemic form only after long intervals. It might be said these outbreaks of fever originated in the chance circumstances of prevailing distress, as in the years 1748, 1802, 1817, 1847. But the other epidemics referred to could not be traced to such a cause, and the present one occurs at a time when the food of the people is most abundant, and of the best quality. It is also said to be the direct emanation from cesspools, or other malarious influence; but in contradiction to this it may be observed that while this cause is constant, the effect attributed to it is most variable; and, besides, the particular form of

fever said to be specially dependent on this cause—typhoid—has scarcely appeared in this locality, which cannot boast of the excellence of its sewage. We must, therefore, seek for some cause. atmospheric or telluric, different from those which come under the cognizance of our senses, or which are discoverable by chemical analysis, to account for the outbreak of fever at particular times, Sydenham used the term, "constitutio æris," to express this unknown property in the atmosphere. But fever spreads more slowly, and is more capricious as to the localities it invades than could be expected if the poison were diffused freely in the atmosphere. For instance, we find one town assailed, and a neighbouring city remaining exempt for a long time after; and even when a town or city becomes the seat of the disease, all parts are not assailed together, but those parts first attacked become first freed from the poison. Many striking examples of this fact presented themselves in 1847. Amongst others, the Cork Workhouse—where every third person was a victim of the disease, in the Winter and Spring—became entirely exempt from it in the Summer, the time at which other parts of the city were virulently assailed. In attacks of influenza, on the other hand, we have an example of how rapidly diseases purely atmospheric spread; as this assails not only all parts of a town simultaneously, but is diffused at the same time throughout the whole country. From all this we might infer that although the atmosphere, or some emanation from the soil, is capable of producing a tendency to fever at times, there must be some immediate cause capable of bringing it into activity in each locality. We might compare it to a house filled with combustible materials which, nevertheless, remain innocuous till something is brought into contact with them capable of producing ignition. The primary and secondary cause in this development of the disease are as much beyond our comprehension as the essential nature of the poison itself. The contagious character of this epidemic has been exhibited in the death of two of the medical attendants at the Fever Hospital, and of two dispensary physicians. Still equally strong proofs have been afforded that the poison emanating from the bodies of the infected is rendered innocuous by the slightest dilution with pure atmospheric air. In the large number of cases which I have attended I never found the disease spread from one member of a family to another, no matter how close affection or duty brought them into contact; provided the house was managed with the least attention to proper ventilation and cleanliness.

I shall now endeavour to describe the leading symptoms of this disease—no easy task, seeing how much they vary in different cases. The disease is generally ushered in by rigors, though in many cases so obscure are the early symptoms that they escape the observation of the patient, and mislead the most vigilant physician. The pulse, during this time, is often little above the ordinary standard, and the heat of the skin not perceptibly raised above that of health—sometimes is below it. The tongue also misleads, as it is seldom much furred at the commencement, and sometimes not much so through the entire disease. Sometimes, at this stage, the disease has been masked under the form of bronchitis, diarrhea, severe muscular pains, resembling rheumatism; and generally the causes which produced the fever were such as would have originated these diseases if fever did not prevail. So singular and unexpected were the transitions into fever, at times, that I was often led to think that it was a true change of disease, such as we often witnessed in cases of Asiatic cholera.

About the sixth or seventh day the disease passes into unmistakable fever, sometimes imperceptibly, but often with a sudden and alarming change, attended with vomitings, violent headache, slight delirium, and a sense of alarm to the patient About this time the pulse ranges from 100 to 120, fever heat is established, the tongue is furred, and a whitish crupous-like exudation is often seen on the arch of the palate, at one or both sides, and sometimes on the side of the tongue, which I believe to be true typhoid deposit, as it appears and disappears with the cutaneous rash. It might be easily brushed away, but will as quickly reappear. Now and again the whole tongue is covered with this matter, resembling the thrush of childhood. During this period of increased febrile excitement the rash makes its appearance, and, as in the exanthemata, is often followed by a mitigation of the symptoms. In the character and appearance of this eruption there is a great variety. Sometimes as early as the third or fourth day there is a dark-coloured mottling, resembling the figures of rubeola nigra, appearing and disappearing several times, and about the eighth or tenth day giving place to some more defined rash. This eruption was never seen here in the fever of 1847. In other cases we find the body covered with fiery red spots, resting on a dark-red, ill-defined base; the latter extending and becoming darker as the disease advances. Sometimes morone-colour patches, slightly elevated, are diffused over the body. In all these the rash, like that of typhoid fever, is effaceable

on pressure, except in some cases towards the end, and begins to fade about the eleventh or twelfth day, even though the symptoms of fever have not yet left. The true typhoid rash has been seen but seldom, and the petechiæ of genuine typhus, so frequent in former epidemics, has been equally rare. The latter fact I attribute to the improved condition of our poor in good clothing and the ventilation of their dwellings. The absence of typhoid is not so easily explained, particularly if we are to adopt the theory that it is the direct result of the emanations from defective sewage, as Cork cannot as yet boast of much superiority over other towns in this respect. The general practice is to give the name of typhus to all fevers attended with a rash which is not of a typhoid character. Is this division useful in practice? The name typhus carries with it the idea of great prostration of the functions of the mind and body, nervous debility, and such alteration in the capillary circulation as leads to stagnation of the blood and all its consequences. In these respects the great majority of our cases more resembled in character the symptoms attributed to typhoid fever; exhibiting till the very last stage a degree of bodily and mental energy inconsistent with the blood-poisoning of the former disease. Names would be of little consequence if they did not carry with them erroneous ideas of practice both with the profession and the public, and in this case may lead to the too early and indiscriminate use of stimulants. In the subsequent part of this disease it sometimes, but rarely, assumed the character of typhus attended with great prostration, muttering delirium, and the gradual extinction of all intelligence. In the majority, however, the disease progresses without the intellect becoming much disturbed; or, if disturbed, the delirium indicating more an excited than an oppressed brain. In unfavourable cases the pulse and breathing become extremely quick, and the former very weak. This condition of the circulation precedes, and appears to be the cause of passive congestion in the brain, and œdema of the lungs, which bring about the fatal termination when this occurs. In comparing this disease with that of 1847 we note many points of difference. In the present we have no instances of relapsing fever, which was the prevailing type in the former period, especially among the poor. The present disease terminates generally by a single crisis, about the fourteenth day. Some few cases of a chronic character came under my notice, extending in two instances, to eight or ten weeks; but such cases were very rare. In the former period, diarrhea, with ochre-colour or pea-soup-

like discharges, occurred in nearly every case. In this there are few in which the bowels are not more or less confined. The biliary organs were more effected in the former, giving the skin an appearance of a yellow fever; in this the lungs and sympathetic nerve appear to be more influenced by the disease. In 1847 there was no eruption on the skin in many cases; whereas its absence in this epidemic is very rare. In the former the sequelæ were, chronic diarrhea or dysentery, cold abscesses, œdamatous legs; in this we often find great nervous debility, leading to a semi-paralysed state of the limbs, congestion, solidification, and sometimes gangrene, or suppuration of the lungs.

I would have some delicacy in expressing my own views of treatment in this complex disease; but as I have had the advantage of consultation with nearly every physician in Cork, I can state what has been the general practice in this city. When it is apprehended that a fever is about to set in, the usual diaphoretic medicines are administered, with mild aperients. Even at the earliest stage we are unwilling to give drastic purgatives, although patients frequently crave for active purgatives, to get rid of some very uneasy sensation which they complain of in the abdomen. This period is also availed of to administer some mild mercurial as an alterative. Leeching the temples, so common in former years, is seldom resorted to, and I am sure, in many cases, the omission is injurious to the patient. The great relief I have seen to arise in some cases from epistaxis induced me to apply leeches in others, who had similar symptoms, and I feel bound to say, with the happiest effect. In the whole matter of depletion we are suffering for the sins of our ancestors who carried this remedy too far. But I believe we are ourselves yielding to a form of public opinion created partly by a few scientific physicians, but more by homeopathic and hydropathic quacks and their admirers. In my earlier days we dare not treat a case of fever without some depletion. The same treatment if adopted now would get the credit of every bad symptom which may afterwards arise in the case. In this matter I am not "*laudator temporis acti*," neither do I sympathise with the "*avidi rerum novarum*," too numerous a class in the profession at the present day. About the sixth or seventh day there is frequently a struggle of nature for the development of the rash, as in the exanthemata. Stupes to the feet, and diaphoretics more or less stimulating, according to the particular case, favour that effort; after which the sensations of the patient become less

uneasy, either from an actual improvement, or from an increasing torpor of the nervous system. From this time forward, if not sooner, it becomes necessary to determine if stimulants, and of what kind and quantity, are to be used, also the amount and kind of nutriment the patient is to receive. In this epidemic there are few cases in which wine is not administered in greater or less quantity, from a tablespoonful every three or four hours, to the same quantity every hour. The object of giving wine is twofold—to act as a stimulant in sustaining the heart's action, and also by combining it with other articles of diet, such as arrow-root, that it might act as nutriment. With this latter object milk is urged on the patient in every way he can be got to take it—in the beginning in the form of whey, and in the latter stages mixed with water. Giving chicken broth in fever, is in this locality a great innovation. It was very seldom given in any former epidemic in this city till convalescence had commenced. Has the practice of the profession changed so materially, or is it the disease not the practice that has changed. I believe the latter. In most of the cases which we met in former epidemics the tongue was dry and thickly coated with fur. In the present it is moist and sloppy, showing that the stomach does not now sympathise in the disease as much as it did then. The best proof of the propriety of administering this nutriment is that it is relished and approved of by the patient. The case which is least fitted for chicken broth, that in which the patient cannot digest it, is that in which wine is most necessary as a stimulant, and *vice versa*. It is where the powers of the digestive organs are so impaired as not to be able to supply new blood to nourish the wasting tissues, and where actual blood-poisoning is weakening the heart's action, that the full action of wine is required as a stimulant. At the end of a fever thus fed we find the patient little fallen away—in fact a proof that his food had been well digested; while in a case of typhus with dry parched tongue, no matter how much wine might have been used, the patient was emaciated at the time of crisis. I cannot help feeling, however, that the digestive organs have been occasionally overtaxed by the administration of nutritive food during the fever, and that the crisis is not so complete, or the convalescence so rapid as in the more emaciated cases. When wine has been administered in large quantity it is important it should be diminished when it is evident the poison of the fever has passed away, as shown by the fading of the rash, or by partial crisis, even though a considerable amount of sickness still remains. This

continued illness often arises from secondary disease, which was produced during the progress of the fever, and now continues after its cause has been removed. Stimulants will only help to give this disease a chronic and dangerous character. Mild, easily-digested nutriment will carry the patient safely through this critical period of his illness. With reference to the administration of sedatives the practice of physicians varies very much. Some think a mild opiate, every night, given by the mouth, or in form of enema, useful in tranquilizing the nervous system—of course only in cases where there is no congestion of the brain, active or passive. Others are very unfond of this remedy, as tending to depress the nervous energy, and impair the powers of the digestive organs. As compared with former epidemics the cases at present, in general, may get opium with least risk of injury, as there is seldom cerebral congestion till the end of the disease; but the necessity for it is another question, and must be determined in each individual case. If the patient sleeps in snatches, be it by night or day, as much when taken together as would suffice in health, or nearly so, I would not administer an opiate; what necessity is there that sleep should take place by night rather than by day? or is it not the fact that the first part of the night is that in which the patient is least likely to sleep, as there is generally an exacerbation of his symptoms at that time; and that when nature brings sleep, it is towards morning? There is no doubt we are all liable to fall into the great error of determining, after several sleepless nights, to try an opiate, though we may incline to the belief that cerebral congestion exists, and this on the general supposition that if he does not sleep he must die. But most men's experience will furnish them with cases in which patients have continued without sleep for eight or ten days and nights, and still recovered. It is not the loss of sleep which ever kills, but that state of the brain or other organ which produces the loss of sleep. On the other hand, there is nothing so soothing as an occasional opiate when the want of sleep arises from slight irritation of the brain produced by the febrile state. It will be seen from what I have stated, that our treatment is founded on the belief that the patient is labouring under the effects of a poison which has somehow entered the blood, and has produced changes in the animal economy, which in their progress are governed by laws more or less fixed. That we know absolutely nothing of the intimate nature of this poison but from its effects on the nervous system, the digestive organs, and circulatory apparatus, and that

our treatment should be solely directed to counteract these effects, rather than to endeavour to eliminate a poison of which we neither know its nature, its mode of operation, its manner of entering or departing from the blood. There is no objection to discuss medical theories in books, but it is mischievous to let them influence practice till proved beyond contradiction.

ART. XII.—*Hints on the Diagnosis of Eye Diseases.* By ROBERT BRUDENELL CARTER, F.R.C.S., Stroud, Gloucestershire.

DURING the last few years the labours of ophthalmic surgeons have added considerably to what was previously known about the various imperfections and diseases of the organs of vision; and, as a necessary consequence, have multiplied the means and increased the accuracy of diagnosis. The results thus obtained have hardly yet been brought together in a form sufficiently compendious for ready reference; and, on account of the rapid growth of the subject, it would at present be scarcely possible to give to such a form a character of permanence, or to embody it in a systematic treatise. There are, however, many readers to whom a summary of the existing position of things would be occasionally useful; and hence I have been led to the attempt to frame one, as a contribution to periodical literature.

In order to facilitate description, it is customary to apply to the organs of vision certain technical expressions besides those which relate to their anatomical structure. We take an imaginary line, passing through the apex of the cornea, the centre of the eyeball, and the apex of the posterior hemisphere, and we call this line the *axis of the globe.* The two apices are called respectively the *anterior* and the *posterior pole.* An imaginary line, in a plane perpendicular to the axis, dividing the globe equally into an anterior and a posterior hemisphere, is the *equator.* An imaginary line, in a plane coincident with the axis, dividing the globe equally into a superior and an inferior hemisphere, is the *horizontal meridian;* and a similar line, dividing the globe into a temporal and a nasal hemisphere, is the *vertical meridian.* The same expressions, *mutatis mutandis*, are applied to the crystalline lens. The point to which the eye is directed in the act of vision is called its *fixing point;* and a line drawn from this point to the foramen centrale of the retina is the *axis of vision.* The axis of vision and the axis of the

globe are not quite coincident, but form with one another an angle of about 6°, which is usually increased in hypermetropia, and diminished in myopia.

If we except a few disorders of the surface of the eyeball, that is to say, of the conjunctiva and of the peripheral portion of the cornea, we shall find that all other diseases or imperfections of the eye are productive of impairment of function. The patient cannot see perfectly; and it is often from the diminution of his power of vision that he first learns his need of relief.

The degree and nature of this diminution are matters of primary importance to the practitioner, and require to be accurately tested. We investigate the state of vision with regard to its *acuteness*, its *extent*, its *range*, and its *co-ordination*.

The acuteness of vision admits of being expressed in German by the single word *Sehschärfe*, and the letter S., the initial of this word, has come to be used, in other countries also, as a convenient abbreviation of it. In order to determine the value of S. in abnormal conditions, it is first necessary to obtain a standard for health; and such a standard, together with the means of measuring any decadence from it, is furnished by the employment of test-types.

Until recently, the test-types in general use were those of Professor E. Jäger of Vienna; and, although they are now superseded in cases where exactness is required, it is still necessary to be acquainted with them. They are common printer's letters, of twenty different sizes, ranging from what is called "brilliant," (No. 1), to "8-line Roman," (No. 20). A normal eye should read No. 1 at ordinary reading distance; and should read No. 18, and words or letters of No. 16, at a distance of twenty feet.

Professor Donders, when engaged in investigating the phenomena of astigmatism, found the necessity of a more accurate test; and the want was supplied, on the same principle, and nearly at the same time, by Dr. Snellen, of Utrecht, and by Dr. Giraud-Teulon, of Paris. It has long been known that the visibility of an object depends, *cæteris paribus*, upon the visual angle under which it is seen; and Dr. Snellen determined by experiment that "square letters, whose limbs have a width equal to one-fifth of the letter's height are generally distinctly visible at an angle of five minutes." On this basis he constructed a scale of letters, carefully drawn in exact proportion, and containing eighteen varieties. These are numbered consecutively from 1 to 8, and the larger numbers are 10, 12, 15, 20, 30, 40, 50, 70, 100, and 200. They are all so

arranged that the letters are seen under a visual angle of five minutes, when placed at a distance from the spectator equal, in Paris feet, to their own distinguishing number. Thus a normal eye should read No. 1 at one foot; No. 3 at three feet; No. 200 at two hundred feet, and so on.

In using this scale the value of S. is found by dividing the distance between the type and the spectator by the number of the smallest letter that can be read with certainty. A person with normal vision will read No. 20 at twenty feet, and therefore, his S. will equal $\frac{20}{20}$, or unity, which is thus taken as the standard. Another person at the same distance will only be able to read No. 30, and another only No. 100. In the first case $S=\frac{20}{30}=\frac{2}{3}$; and, in the second, $S=\frac{20}{100}=\frac{1}{3}$; and the acuteness of vision is respectively only $\frac{2}{3}$rds or $\frac{1}{3}$th of what is natural to the eye.

To use the test-types, they should be suspended against a wall in a good light, and the patient placed at a measured distance from them. The smallest letter that he can read with certainty is then found by experiment, and the measured distance divided by the number of the letter. If it be desired to check the trial by another, the letter and distance may be varied. If a patient can read only No. 50 at ten feet, then his $S=\frac{10}{50}=\frac{1}{5}$. At twenty feet he should read No. 100; at eight feet he should read No. 40; and at two feet he should read No. 10. The Paris foot, by which the distances should be measured, is three-quarters of an inch longer than the English.[a]

There are cases, however, short of total blindness, in which no letter can be read at all. No. 200 of Snellen's types is a capital A, three inches and three quarters in height; and incapacity to decipher it would amount to incapacity to discern objects. We then can only test the perception of light. If the patient can discern the reflection from a white surface, such as a sheet of writing paper, we say that he possesses *qualitative*, but if he can only discover the direction of the window or the lamp, or can only distinguish between light and darkness, we say that he possesses only *quantitative* perception of light.

By using these tests we are not only able to describe in writing the exact degree of acuteness of vision, but we are able to measure with precision the changes that take place from day to day, and

[a] Jäger's test-types are kept printed, on sheets, by Messrs. Harrison and Sons, printers, St. Martin's-lane, London, W.C. Snellen's may be obtained from any foreign booksellers.

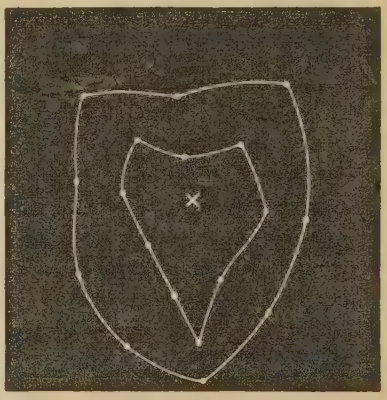
the benefit that has been derived from treatment. For cases of considerable impairment of vision, in which much exactness is not required, the fingers of the surgeon may be used as convenient test objects. Thus we say that the patient can count fingers at two feet, or at three feet, and the distance affords, as it increases, a rough measure of improvement.

The *extent*, or field, of vision, signifies the extent of surface over which objects can be seen, while the eye remains directed to a central fixing point. It furnishes, therefore, a measure of the functional activity of the peripheral portions of the retina; and its exact determination is of great diagnostic value in many cases.

The field of vision may be roughly tested by the index finger of the surgeon, moved upwards, downwards, to the right, and to the left, in front of the patient, until it passes out of his view in each direction. The eye of the patient must not follow the finger, but must be fixed upon the face or eye of the surgeon; and the finger may be about a foot in front of the patient's face. The eye not under examination must be closed or covered; and, where vision is very imperfect, the finger will be better seen if it be kept moving to and fro on its articulation with its metacarpal bone.

When such an examination as this reveals the need for a more precise one, or when a more precise one is required on account of the nature of the case, the field of vision may be exactly mapped out in the following way:—The patient must be comfortably seated in front of a black board, about a yard square, having its centre level with, and opposite to, the eye under examination, and eight inches distant from it. This distance may be maintained by some support for the head. At the centre of the board a mark is made with chalk, and the patient is directed to look at it steadily. The eye not under examination is covered by the hand. The surgeon then takes a piece of chalk, fixed to the end of a black rod, and, commencing from one side of the board, moves the chalk towards the centre until it becomes visible to the patient. At the point where it becomes visible a mark is made, and the chalk is moved onwards until it becomes *clearly* visible, when a second mark is made. The chalk is thus drawn from the circumference to the centre in several directions, as many as may be required; and then a line is drawn to unite the outer or first series of marks, and another to unite the inner or second series. The latter line will include the field of clear vision; between the two lines will be a zone in which vision exists, but is indistinct; and the first line

marks the outside boundary of the field. The annexed diagram shows the kind of map that may be obtained in the manner described; and it will be observed that the fixing point ×, although central on the board, need not be central in the field of vision. With proper care, the limits of the natural blind spot, situated on the temporal side of the fixing point, and corresponding to the surface of the optic disc, may be accurately traced; and sometimes morbid blind spots will be found in other portions of the field. These always require to be most carefully examined and defined. It is well to have the board divided into squares by slightly grooved lines, and to keep diagrams drawn in the same proportion on a reduced scale, on which a field of vision may be copied from the board, and preserved in a convenient form for future reference.



When very great accuracy is required, it is well to test the first map by a second, obtained by moving the chalk in a direction from the centre to the circumference. It is also often necessary to repeat the examination several times, in different degrees of illumination, in order to discover the sensitiveness of the retina under different amounts of light. The letters Se., that is, eccentric Sehschärfe, are used as an abbreviation to denote peripheral vision.

The *range* of vision refers to distance only, and is included between the far point, r, *punctum remotum*, and the near point, p., *punctum proximum*. The former signifies the farthest, and the latter the nearest point at which objects can be clearly seen. In normal eyes, there is really no far point, no distant limit of vision, and objects only cease to be visible when so far removed that they no longer yield sufficient light to stimulate the retina. For every healthy eye, however, there is a distinct near point, within which fine print is no longer legible; and this near point naturally becomes more remote as life advances. Its distance is the measure of the power of the eye to *accommodate*, that is, to increase its refraction by volitional effort; and this power is chiefly due to an increase in the curvature of the anterior surface of the crystalline lens, effected by the action of the ciliary muscle. With the lapse

of years, the lens becomes harder than in youth, and its shape is less easily modified; while the muscle itself must sometimes become less vigorous. In most people, therefore, the near point becomes inconveniently remote prior to old age; so that a newspaper has to be held at arm's length. This condition is called presbyopia. Within certain limits, it is strictly physiological; and it is arbitrarily defined to commence when the near point is ten inches from the eye.

When the far point is at some finite distance from the eye, that is to say, when vision becomes indistinct as the object is removed *beyond* some definite distance, as one foot, or six feet, we have the condition called myopia, or shortness of sight. The place of the near point can always be measured by moving the object of vision to and fro on a sliding scale, while the eye is kept stationary; but, in order to determine the far point in this way, a scale of inconvenient length would be required. It is shortened by making the patient look through a convex lens, which brings the far point of a normal eye to the principal focus of the lens, and the far point of a myopic eye *within* this focus. If the distance of the far point, as seen through the lens, be made into a fraction by placing 1 as its numerator, and if the focal distance of the lens be made into a similar fraction, and if the lesser of these fractions be subtracted from the greater, the result will be another fraction, the denominator of which will express the actual distance of the far point. If the lens chosen have a focal distance of six inches, and if the far point of a person looking through it be five inches, then $\frac{1}{5} - \frac{1}{6} = \frac{1}{30}$, and the actual far point will be at thirty inches. If the lens be of ten inch focal length, and the far point through it be at nine inches, then $\frac{1}{9} - \frac{1}{10} = \frac{1}{90}$, and the actual far point will be at ninety inches. In these experiments the distance of the object should not be measured from the eye of the patient, but from the centre of the convex lens.

The *co-ordination* of vision refers, of course, to the harmonious union of the two eyes in the visual act. When this union is disturbed, the first result is that the images formed upon the two retinæ are no longer blended, and diplopia, or double vision, is produced. It is then necessary to determine whether the images are crossed or not—that is to say, whether the right hand image belongs to the right eye or to the left. For this purpose the flame of a taper is chosen as an object; and the patient holds a slip of red glass before his best eye, while he looks at the flame with both. The reddened image, whether it be on the right or the left, will belong, of course, to the eye before which the glass is held. If the

images are crossed the eye in fault is deflected outwards, and if they are not crossed the eye in fault is deflected inwards. The extent of the deflection may be estimated by the distance apart of the images; and it may be sufficient to cause very troublesome diplopia without amounting to a visible squint. The most frequent cause is a partial paralysis of either the internal or external rectus muscle, arising from some affection, centric or eccentric, of its motor nerve.

Sometimes it happens that double vision ceases, and yet that proper binocular vision is not restored. When this is so the patient only uses one eye, and suppresses the image received by the other, If the eye be tolerably sound, and the image of normal brightness, the latter can seldom be suppressed without a decided squint, which causes it to fall upon the peripheral and less sensitive portion of the retina. If the retina be from any cause torpid, the second image may be suppressed without a squint.

The presence of binocular vision is tested by placing before one eye a prism, with its angle to the nasal side, while the patient looks with both eyes at a candle flame eight or ten feet distant. If binocular vision be perfect the patient will either see two images, or the eye furnished with a prism will squint inwards to overcome its refraction. If neither result follow we conclude that the patient sees habitually with one eye only. Another and very simple test is to let the patient read, at his ordinary reading distance, and to hold a pencil, or other small object, half way between his eyes and the book. With proper binocular vision he will see two images of the pencil, neither of which will interfere with his reading. With monocular vision he will see only one image of the pencil, and this will shut out a part of the page from his view. It must be remembered, of course, that monocular vision does not imply blindness of either eye, but simply loss of the co-ordination between the two.

Next to impairment of vision the most prominent symptoms in eye diseases are pain and congestion.

The pain may be either referred to the globe itself, in which case it is most frequently produced by heightened tension, or it is felt chiefly in the parts around the orbit, and especially in the filaments of the supra-orbital branch of the tri-facial nerve.

The congestion presents itself under three principal forms. In the first the vessels that perforate the sclerotic near the cornea, and pass backwards towards the equator, are distended and tortuous; in the second the cornea is surrounded by a delicate zone of redness; and in the third the general surface of the conjunctiva of the globe

is covered by a network of vessels. The second of these conditions is sometimes concealed by the presence of the last; but they are all too well known to require any detailed description.

We will now suppose that a patient presents himself suffering from considerable bright redness of the conjunctiva of the globe of one or both eyes, and complaining of some smarting and discharge. We place him with his face towards a good light, and observe—first, that the cornea retains its natural polish and transparency; secondly, that the aqueous humour is clear; and, thirdly, that the pupil is freely movable.

The polish of the cornea is best tested by its action as a reflector. In the healthy state it reflects a perfect image of any object placed in front of it, such as a candle flame, or the sashes of a window, or the face of the spectator; and if this image be in any way blurred, broken, or distorted, we have to deal with some disturbance of the corneal epithelium, or some departure from the symmetry of the corneal surface.

The transparency of the cornea and the aqueous humour is best shown by the clear visibility of the peculiar fibrous structure of the iris, and by its natural colour. Sometimes, when the cornea is transparent, the aqueous humour will be yellow and turbid, so that the iris will be only indistinctly seen, and, if naturally blue, will appear of a greenish tint. In such a case a puncture of the cornea, by allowing the escape of the turbid and discoloured fluid, will restore the natural appearance of the iris.

Supposing, however, that the cornea is bright and the aqueous humour limpid, attention should next be directed to the pupil. The eye not under inspection being closed, the shadow of the surgeon's hand should be allowed to fall upon the other. The pupil, if healthy, will instantly dilate, and will contract again when the shadow of the hand is removed. If it does so we have only to find that the natural acuteness of vision is unimpaired, in order to arrive at the conclusion that the disorder is external to the eyeball, and strictly limited to the conjunctiva. If the acuteness of vision were diminished we should infer that the choroid was congested and that there was danger of the external inflammation being complicated by some form of choroiditis.

In applying this test to a stranger, we must not hastily conclude that he possessed $S=1$ prior to the attack of conjunctivitis. It is very common to find the acuteness of vision below the natural standard in persons who are quite unaware of their own deficiency in this respect, and who suppose that they see as well as their

neighbours. In any case of apparently simple conjunctivitis, with S. below unity, it is well to test the sight by some familiar object, and to make sure that vision is not only defective, but recently impaired, before suspecting choroidal complications.

There are several forms of disorder that implicate the cornea, and that do not affect vision unless they encroach upon the portion in front of the pupil, or unless they are attended by excessive photophobia. These disorders are mostly vesicles, pustules, ulcers, or various inflammatory affections, presenting many points of analogy to certain diseases affecting the skin; and their characters, as well as those of the varieties of purulent ophthalmia, are usually to be read at a glance. Modern researches have done little more than to clear up their precise anatomical and pathological characteristics and analogies; matters of great interest, but with which we have here little to do. It is necessary to remember that a corneal ulcer, especially when beginning to heal, is often surrounded by a considerable zone of cloudiness; and hence that this cloudiness, although the ulcer itself be quite eccentric, may encroach upon the pupillary space, and seriously interfere with vision.

There is, moreover, an affection principally of the cornea, although often implicating the deeper structures of the eye, which is attended with impairment of vision from its very commencement, and which has been placed in an entirely new light by the genius and the labours of Mr. Hutchinson. This is the corneal inflammation peculiar to persons who have inherited the syphilitic constitution (or who, as I believe, have acquired it by vaccination); and its detection is of the highest importance, because the treatment it requires is of a special character. It is recognized in mild cases by a peculiar aspect of the cornea—an aspect that usually commences as a slight central haze, that becomes subsequently mottled or dotted, and eventually passes into an interstitial cloudiness. It is attended by a comparatively small amount of congestion, is prone to attack first one eye and then the other, and is associated with the peculiar facial conformation, the earthy complexion, the scarred angles of the mouth, and the notched, crescentic, or peggy teeth that are so graphically described in Mr. Hutchinson's monograph.

When the surgeon is satisfied, by the tests already mentioned, that he has to deal with an inflammation that is external to the eye-ball, his next point is to ascertain whether there is any external cause to account for it. For want of this simple precaution I have several times seen patients who had been energetically treated, by

local and constitutional means, for symptoms entirely due to the presence of a foreign body. The cornea should, therefore, be carefully scrutinized, to see that nothing is impacted in its substance; the growth and direction of the eyelashes should be noted; the upper eyelid should be everted and the lower drawn down, and the openings of the canaliculi inspected with the aid of a lens, in order to see that no fallen eyelash has become entangled in them.

Patients sometimes present themselves, however, in whom redness of the conjunctiva is associated with impairment of vision and with turbidity of the aqueous humour, so that the fibrous structure and proper colour of the iris are somewhat disguised. There is then acute congestion or actual inflammation of the choroid and iris. The extent to which the iris is inflamed may be seen by the number and size of the adhesions between the margin of the pupil and the anterior capsule of the lens; and these adhesions, if not readily discernible when the pupil is exposed alternately to light and shade, may be rendered manifest in a few minutes by the instillation of a drop of a solution of atropia containing four grains to an ounce of water. The surgeon will arrive at a conclusion as to how much impairment of vision is due to the turbidity of the aqueous humour, to the partial closure of the pupil, and to the effusion of lymph; and, if the actual impairment be much in excess of what can be thus accounted for, he will conclude that the choroid participates in the disease. When it does so its participation will usually produce increased tension of the globe.

In order to estimate *tension* the surgeon should familiarize himself thoroughly with the peculiar resilience of the healthy eye The method of examination is to make the patient gently close his lids, as if in sleep, while the surgeon places the tips of both forefingers upon the upper part of the globe a little apart, and by alternate gentle pressure, feels and estimates the degree of resistance. Mr. Bowman makes nine degrees of tension, four above and four below the normal, and expresses them by a scale of T's, as follows:

$$-T^3 - T^2 - T^1 - T^n \; T^n + T^1 + T^2 + T^3.$$

This scale is easily intelligible. In $-T^n$ and $+T^n$ the departure from the normal standard is doubtful; in $-T^1$ and $+T^1$ it is no longer doubtful; in $-T^3$ the globe is perfectly soft; and in $+T^3$ it is as hard as a stone. The only difficulty about the T's is the impossibility of referring them to any common standard. The T^3 of one surgeon might be the T^2 of another.

Disregarding this unavoidable difficulty, if a patient presents

himself in whom there is manifest iritis, with greater diminution of vision than the iritis present will account for, and with evident but not extreme increase of tension, we infer that the choroid is seriously implicated in the disease.

Such cases must not be confounded with others, happily rare, and, still more happily, remediable by prompt treatment, in which the globe is as hard as stone, the conjunctiva injected, the cornea steamy, the pupil dilated and fixed, the pain intense, and vision almost abolished. This is *acute glaucoma*, and requires the immediate performance of a large iridectomy, in order to save the eye from speedy and complete destruction.

In order accurately to estimate the nature and the significance of tension, or in other words, of abnormal fulness of the globe, it is necessary to remember that it may arise either from the active congestion and the effusions due to acute inflammation, or in a manner more insidious, by a disturbance of the natural balance between secretion and absorption within the eye. The former condition, usually due to irido-choroiditis, is most frequently seen in the eyes of persons not past middle age, in whom the sclerotic coat retains a degree of elasticity that permits it to yield somewhat to the pressure from within. Partly from this yielding, and partly because inflammatory tension is seldom excessive in degree, it is not, as a rule, immediately destructive to the retina; but it imparts to the inflammation a very intractable character, so that if the tension be not relieved, the eye will usually be lost eventually; and, on this account, its early recognition is of the highest importance.

The more chronic form of tension that is produced by disturbance of the balance between secretion and absorption, is mostly seen in the eyes of persons past middle age, in whom the elasticity of the sclerotic is much impaired. It is the cause of the several varieties of glaucoma; and the precise character of the phenomena, in any case, will be chiefly due to the rate at which the tension increases, and to the degree of resistance that is opposed to it. The continued existence of excessive intraocular tension necessarily produces compression of the retina, and consequent loss of sight. The whole surface of the retina suffers, but the peripheral portions suffer earlier than the central. Consequently, the field of vision becomes gradually contracted; and, although central vision is always impaired in some degree, it may remain comparatively good up to a late period of the disease. In the end, however, unless the tension be relieved, total blindness will be the result.

For some reason, either from weakness of the ciliary muscle by interference with its supply of blood, or from pressure upon its motor nerves, or from the production of a premature hardness of the crystalline lens, the early stages of increased tension are usually attended by rapidly increasing presbyopia. Where this symptom presents itself, a careful examination of the degree of hardness of the globe should never be omitted.

The ocular tissues, like other textures of the body, show a marked tolerance of pressure that is only very gradually increased; and a decided intolerance of the same degree of pressure when suddenly or quickly produced. While, therefore, in cases of very gradually increasing tension, the only symptoms may be presbyopia, dimness of sight, contraction of the field of vision, cupping of the optic disc, and eventual blindness, it is more common to meet with patients in whom a more rapid rate of increase is productive of more or less inflammatory reaction. In such cases the dimness of sight is liable to be increased suddenly for short periods, which may be followed by partial improvement; and it is common for the exacerbations to be attended by ciliary and orbital neuralgia, by the appearance of coloured fringes around a flame, by congestion and inflammation of the ocular tissues, and by opacities in the crystalline lens and vitreous body. When the increase of tension is very rapid the symptoms are correspondingly severe.

The more typical examples of these three gradations of rapidity are called respectively, simple chronic glaucoma, sub-acute glaucoma, and acute glaucoma. They possess common characters, depending upon exalted tension, and differential characters, depending upon the rate at which that tension has increased, and upon the amount of resistance opposed to it by the sclerotic. In all of them the tension is the first demonstrable link in the chain of morbid action; and must be carefully distinguished from the tension that arises as a mere symptom of choroiditis. The history of the disease will usually clear up all doubt; and the important difference must be remembered, that the tension which produces glaucoma tends to steady increase; while that which arises in the course of choroiditis would disappear with the disappearance of its cause, and may, therefore, sometimes yield without calling for any special treatment.

In cases where the surgeon decides that he is dealing with a disease that is primarily iritis, or irido-choroiditis, the question will often arise:—What is the character of the inflammation? Is it common or specific?

The forms of specific inflammation chiefly noticeable are those dependent upon syphilis and upon gout. I am not aware of any pathognomonic sign by which either of these forms may be recognized, and I am quite sure that many of the signs mentioned by authors are occasionally deceptive. If the frequent occurrence of these forms of inflammation be kept before the mind, if the state of the patient be carefully examined, if his history be carefully inquired into, and if tentative treatment be cautiously employed in doubtful cases, there will be little liability to any error of importance.

We may now pass on to the consideration of cases in which there is defective vision, without any striking change in the external aspect of the eye. There may be trifling congestion produced by straining efforts to see, but no intense redness, no ulcer or opacity of the cornea, no turbidity of the aqueous humour, and no visible change in the iris.

In such a case we have first to inquire whether there be any error of refraction, that is, whether the patient be myopic or hypermetropic. To determine this point the test types are used, and the patient is tried first with low-powered concave and then with low-powered convex glasses. If the concaves improve vision a succession of trials will determine what powers raise the vision to the highest attainable point. If the convex lenses are beneficial a similar trial cannot be accurately made until the accommodation is paralysed by atropine. For this purpose it is necessary to use a drop of the four-grain solution, and to allow two hours for its action.

In cases where either concave or convex glasses raise S. nearly to the natural standard we may usually be content; but if they produce a comparatively small amount of benefit we may suspect the existence of astigmatism.

Astigmatism sometimes depends upon irregular formation of the crystalline lens; but its usual cause is an excess of the natural difference between the vertical and the horizontal curvatures of the cornea. Its chief characteristics are—the inability of the patient to perceive vertical and horizontal lines at the same time with equal distinctness—and the improvement of vision that is produced by looking through a narrow slit in a blackened card or a plate of metal, when this slit is placed in some particular direction, to be found in every case by trial. The estimation of the precise kind and degree of astigmatism, so as to be able to prescribe the nature and position of the glasses calculated to relieve it, is too intricate a

matter to be here described. Full information may be found concerning it in the great work of Professor Donders, and sufficient information for most purposes in the smaller treatises of Mr. J. Z. Laurence and Mr. Soelberg Wells.

There is another form of corneal deformity that seriously impairs vision, namely, conicity. This condition, when developed, is too conspicuous to be overlooked; and, even in its early stages, it is usually very manifest when the eye is examined in profile.

If there be no evidence of the presence of astigmatism, or of any other irregularity of the cornea, the surgeon may next direct his attention to the crystalline lens, with especial reference to its transparency.

In order to examine this structure two methods are available—focal illumination and the use of the ophthalmoscope. For young people the former, and for old people the latter, will furnish the most uniformly satisfactory results; although it is always desirable to employ both. To use focal illumination a lamp is placed at the side of the patient's head, and somewhat in front of it; or a beam of daylight passing through a small hole in a screen may be used instead. However obtained, the light is concentrated by a bi-convex lens upon the part of the eye under examination, and the portion thus illuminated may be examined through another glass used as a magnifier. The management of the cone of light will need a little dexterity that only some practice can give; and in order to examine the lens the pupil must be completely dilated by atropine.

In the eyes of young people, who suffer from defective vision, we may find, at least, two forms of cataract, the first consisting of a filmy, or dotted, or stippled opacity, extending to the equator of the lens, and implicating the external cortical substance in some degree. In the second form the opacity is central, sharply defined, and surrounded by a zone of perfectly transparent tissue in which no trace of cloudiness can be discovered. The difference between the two forms is very important; since in the first the opacity will spread steadily over the whole lens, and in time produce blindness. In the second the opacity has little or no tendency to extend itself, even though it may become more dense. The transparent zone will usually remain transparent, at least for many years; and, if it be wide enough, useful vision may be restored by the employment of atropine, or by displacement of the pupil without removal of the lens.

Among the more rare conditions that focal illumination may

reveal must be mentioned dislocation of the lens, which may occur in almost any direction. Such displacements are usually found in both eyes, and in the same direction in both with regard to the median line. The displaced lenses are often not perfectly transparent.

The faint opacities of the lens that may be present in young people, and seriously affect vision, are readily seen under focal illumination by their greyish or whitish colour; but they may sometimes be so generally diffused as not to be very evident when looked for with the ophthalmoscope. The commencing cataract of the aged, however, which consists of densely opaque striæ not always differing greatly in colour from the rest of the lens, is most readily detected by the ophthalmoscope. The striæ appear as densely black lines on an illuminated ground, and can be recognized at a single glance with unfailing certainty. The only appearances liable to be mistaken for them are spots left on the anterior capsule by former iritic adhesions; and these, instead of being radiating lines, are disposed in a figure more or less circular.

When senile cataract is fully developed, and the amber-coloured nucleus is surrounded by a layer of milky or spermaceti-like cortical substance, an erroneous diagnosis is scarcely possible. But there are certain states of the eye, in elderly people, in whom the blackness of the pupil is lost, that are frequently mistaken for cataract. The pupil often presents a peculiar appearance of yellow cloudiness due to reflection from the fundus, and very likely, when seen by diffuse daylight under atropine, to deceive a hasty or an inexperienced observer. The distinctive character of this cloudiness is its uniformity. In focal illumination, in such a case, the pencil of light passes over the crystalline without a break; and this it never does when there is cataract. The ophthalmoscope will also afford conclusive evidence, by failing to show the opaque striæ mentioned in the preceding paragraph.

When the above methods of examination display a transparent condition of the lens, the cause of impaired vision may next be sought in turbidity of the vitreous body, or in the various diseases of the retina, optic nerve, or choroid, recognizable with the ophthalmoscope. For a full account of all these conditions, of the methods of discovering them, and for suggestions with regard to their treatment, I must refer the reader to my translation of Zander on the ophthalmoscope. The subject is far too large to be contained within the limits of this paper; and no advantage could accrue from a very imperfect sketch of it.

There are however cases, still very obscure, in which vision is impaired or destroyed, and in which the ophthalmoscope affords but little information. By its aid, in such cases, we may often discover certain atrophic changes in the optic nerve; but the symptoms of impaired vision commonly precede the occurrence, or at least the recognition of these changes, and the atrophy may be an effect rather than a cause. Subsequent symptoms, or death, may occasionally reveal a source of blindness seated deeply in the nervous centres; and symptoms referable to the nervous centres may sometimes precede or accompany the first failure of vision. Still, we have not always even so much light as this; and, when we find defective vision that is not due to any visible change, inflammatory or otherwise, in the transparent media or the ocular membranes, or to any obvious mechanical interference, as by embolia, with the internal ocular circulation, we have no resource but to fall back upon the nomenclature of the pre-ophthalmoscopic period, and to describe the defect, according to its degree, as amblyopia or amaurosis.

It is evident that such cases, by reason of their obscurity, as well as by reason of the importance of their issue to the patient, require the most careful possible attention; and that the question of their probable termination must, at a very early period, force itself upon the mind of the practitioner. They have lately been made the subject of clinical lectures by Professor v. Graefe, from whose remarks upon them the following statements are derived.

According to v. Graefe, our opinion about a case of amblyopia or amaurosis should rest mainly upon three elements, namely, an exact investigation of the visual function, the appearance of the optic disc, and the manner of development of the disorder.

In the investigation of the visual function the degree of central vision is highly important; but, as regards prognosis, it is still more important to test carefully the limits of the field, and the state of of eccentric vision. Experience has fully shown that cases which tend to the progressive extinction of sight are distinguished by contraction of the field, or by obscurity at its limits; and it is evident, *a priori*, that an increasing atrophy of the nervous elements of the retina would be first apparent in the parts most remote from the supply of blood.

For such cases the ordinary method of taking a field of vision is not of sufficient delicacy, and must be refined by the addition of a means of gradually decreasing the illumination. The piece of chalk may also be moved outwards, from the fixing point, as well as

inwards from the periphery. The results of the examination may be arranged under three heads:—

1. The peripheral extent and acuteness of vision are comparatively identical with those of a sound eye—*absolutely normal.*

2. There is diminution of the acuteness of peripheral vision, alike in all directions, and very small in degree relatively to the impairment of central vision—*relatively normal.*

3. The impairment of eccentric vision is irregular—*i.e.*, exists in only one part of the field, or in one direction, or preponderates in certain directions, and is disproportionate in these to the central impairment—*abnormal.*

With absolutely normal eccentric vision we may exclude the fear of progressive atrophy in any case in which the disease has already made some progress. There may be a nascent stage of atrophy in which eccentric vision is not affected; and it is therefore necessary to form a guarded prognosis in cases of recent and undeveloped amblyopia. If the impairment of vision be only of a few weeks' duration, and not below two-thirds of the normal, and if the peripheral vision be absolutely normal, it is still possible that with greater diminution of vision the periphery may begin to suffer in a greater degree. But if the case be of several months standing, with S. depressed to one-sixth, or one-tenth, or less, and if the peripheral vision be then absolutely normal, we may say with certainty that we have not to deal with a case of progressive atrophy. The apparently worse condition will justify the more favourable prognosis, in so far as regards the prospect of eventual amaurosis, but without reference to probable recovery. For we find a number of cases of amblyopia, with unaltered peripheral field of vision, but with central or eccentric scotomata, which resist all treatment, and remain stationary at a certain point.

When the field of vision is relatively normal, this circumstance alone leads to no conclusion; and is only significant when considered together with the aspect of the optic nerve, and the duration and manner of development of the disease. The condition is such as may be produced by the exclusion of one eye from the visual act, as in strabismus; and it may also occur in cases in which, the cause of the disease being in continued operation, as in amblyopia potatorum, an eventual progressive atrophy may ensue. But, when the field of vision is relatively normal, a progressive atrophy is not actually present in a characteristic form; and the case should be hopefully submitted to a rational and individual treatment.

If the field of vision be abnormal, an unfortunate issue is to be expected; but it would be going too far to say that it must necessarily ensue. We shall be guided to a right prognosis by the nature of the limitation of the field, by the relation of the eccentric to the central vision, by the aspect of the optic disc, and by the manner of development of the disease.

If the field of vision in both eyes be curtailed on the same side of the body—as to the right side, or the right upper, or right lower portion—with the central vision nearly or quite normal, the mischief is limited to one optic tract, and may proceed to complete hemiopia, but not to complete blindness. There are some very rare cases, which have as yet received no anatomical explanation, in which there is a defect in the upper or the lower portion of the field, in one or both eyes, the defects being in the latter case symmetrical; and in which, when the defect is sharply defined against normal retina, and when the central vision is normally acute, there is no tendency to progressive atrophy. Concentric narrowing of the visual field by successive diminutions without change of form, as in some cases of glaucoma, may sometimes go on to blindness; but more frequently will admit of arrest or of recovery. Recovery may be looked for with some confidence when the optic disc is of normal aspect, when vision is only moderately impaired, and when the field is enlarged by the use of dark blue spectacles, as in some cases of hysteric anesthesia retinæ, and in some irritable children. The most unfavourable prognosis must be formed in cases of irregular lateral narrowing of the field, occurring simultaneously or successively in both eyes, and in such a manner that the field is most affected in both in the same direction, as towards the inner or towards the outer side, or in some intermediate situation, outer and lower, or inner and upward, as the case may be. The expression "most affected" suggests what is usually the case, that all parts of the field suffer in some degree. Such cases are distinguished from those of hemiopia already referred to, by the circumstance that the affected portions of the field are never sharply defined from other portions that retain their normal function. The common course of amaurosis is for one eye to be already nearly blind, or with its field of vision contracted nearly to the fixing point, before the other begins to suffer. In order to establish the soundness of the second eye it is necessary to test its vision with great care, and to find it perfect, especially in the particular direction in which the first eye began to fail. Such examinations are highly important, because,

for reasons at present unexplained, we sometimes see an interval of a year or two, or even of several years, between the failure of the two eyes; while, in other cases, the one follows the other rapidly. Most commonly, moreover, amaurosis first shows itself on the nasal side of the periphery; a fact possibly to be explained by the anatomical distribution of the fibres of the optic tract. The reverse obtains too frequently to be regarded as a mere exeeption, but only as a less usual occurrence. When the second eye begins to suffer in a direction not homologous with the point of commencement in the first, not both on the medial, or both on the temporal side, but on the same side with reference to the halves of the body, right or left, there may possibly be only a disease of one optic tract, showing itself in succession in the parts supplied by the lateral and by the cruciate fibres, and tending not to blindness, but only to hemiopia. This hope may be entertained if the failure of sight in the first eye does not transgress a vertical line drawn through the fixing point; and if the vision be not less than from one-third to one-fourth of the normal. Under other circumstances progressive atrophy is to be dreaded.

While the investigation of the periphery of the field of vision is thus of great importance, the investigation of its continuity is scarcely less so, especially with regard to the prospect of recovery. In a general way those forms of amblyopia present the greatest likelihood of complete recovery in which the conducting power of the nervous filaments has the smallest deviation from the normal. If in a given diminution of S. there is also a completely proportional state of Se., so that this, after the common rule, diminishes continually from centre to periphery, without interruptions or sudden diminutions at any point, we augur more favourably, *quoad* recovery, than when the diminution of central vision is itself circumscribed and sharply defined against the surrounding parts (central cloud, central scotoma, central defect), or than when, even with less lowering of S., there are any eccentric interruptions. In the cases of central or eccentric scotoma the causes in operation seem often to produce permanent destruction of the conducting elements. At least we often see such defects remain unchanged, and hence our prognosis about them, although favourable, *quoad* blindness, is very doubtful, *quoad* recovery. A sound judgment upon the point may often be obtained by attention to the aspect of the optic disc, and to the mode of development of the disease. It is well to remark, however, that in order to justify a

favourable prognosis, *quoad* blindness, either in central or eccentric scotoma, it is imperatively necessary that there should be satisfactory Se. beyond the defect. If we find a scotoma beyond which, towards the periphery, either generally or in certain directions, the Se. is reduced, the case will, as a rule, terminate in progressive atrophy. Scotomata placed symmetrically in both eyes call for very careful examination in this respect. If the scotomata be in the lower part of each field, and if beyond them, that is below them, the Se. is completely normal, the function of the conducting fibres corresponding to the defect must be complete, and blindness is not to be feared. Otherwise we must anticipate amaurosis.

The intensity of the illumination used is a matter that requires attention. In the normal eye we find that a very considerable diminution of light, from full day-light downwards, scarcely at all affects the clearness or extent of peripheral vision; while in many morbid conditions a very slight diminution is productive of great decrease of visual power, indicating a very general torpor of the perceptive elements of the retina.

We proceed now to consider the appearances of the optic disc in cases of amaurosis; and we have chiefly to observe it with reference to four points, namely—colour, opacity, excavation, and dwindling of the vessels.

The *colour* of the normal optic disc, however much it may incline to white or yellow, is always modified by a stippling or tinting of red, and only here and there, as within a physiological excavation, displays the clear bluish white reflex of the lamina cribrosa. In many forms of amblyopia, and especially in the more threatening, the whole of the papilla loses its natural redness, and becomes more or less uniformly white, thus contrasting strongly with the surrounding choroid, and appearing more sharply defined than usual. The causes of this appearance are twofold—partly that with the wasting of the nerve elements the lamina cribrosa becomes more conspicuous, partly that some thickening of the connecting tissue of the nerve has taken place. These two causes may be either separate or conjoined in their operation. If the first alone be concerned, we see an atrophic excavation presenting a bluish white colouring; if the second, an intensely white disc with a flat surface; if both, a superficial excavation, with the details of the lamina cribrosa clearly visible in the position of a pre-existing physiological excavation, but covered elsewhere by white connecting tissue. The preponderance of one or other form seems to depend,

not on any difference in the atrophic process, but on the precise formation of the papilla, on the character of the intra-ocular pressure, and on the state of the circulation in the connecting tissue. The second test, the *opacity*, may be very briefly dismissed. The delicate semi-transparence of the healthy disc is of necessity done away with when the visible surface is formed either by the lamina cribrosa or by the thickened connecting tissue in front of it. It is then no longer possible to see the vessels sinking into the nerve tissue. The presence or absence of *excavation* depends upon the condition of the connecting tissue at the end of the nerve. Concerning the *diminution of the vessels*, it will sometimes happen that they all, including the larger trunks, become reduced in calibre; but, for the latter, this is not an invariable occurrence. We even see cases of old and complete amaurosis, in which the optic nerve exhibits all the marks of complete nervous atrophy, but in which the larger vessels retain their normal diameter. The case is wholly different when atrophy of the nerve is a result of certain intra-ocular processes, such as choroido-retinitis; for then the diminution of the large vessels is of invariable occurrence. The cause of the difference seems to be that in amaurosis, as in division of the optic nerve, only the fibrous and ganglionic layers of the retina dwindle, while the others retain their structure. In choroido-retinitis, on the other hand, all the elements of the retina perish. The different conditions of the main vessels, seen in atrophic amaurosis, probably depend upon different relations to the connecting tissue. The finer ramifications upon the papilla are, however, always either diminished or absent. The reddish tint of the healthy papilla, doubtless, depends upon a multitude of fine vascular twigs inter-penetrating its substance; and the want of these materially contributes to the bleaching of its surface. It appears that the very fine twigs are mainly subservient to the nutrition of the intra-ocular extremity of the nerve, and of the fibrous bundles surrounding it; and that these twigs share in the wasting of the fibrous layer, while the greater part of the retinal vessels are the channels of nutrition to the remaining retinal layers. The pallor of the disc, produced by diminution of the fine twigs, is necessarily an important element in the production of colour changes; and, while the natural semi-transparence is retained, this pallor may precede all other changes; and may thus mark an initial period of the disease, in which coarse methods of testing the visual field afford, as yet, no result, and in which the most accurate examination is required in order to reveal

the torpor of the periphery that is due to slight functional impairment of the fibrous layer.

The progress of development of all the above-mentioned conditions is briefly described as atrophic degeneration of the optic disc. It must be remembered that bare inspection cannot reveal, in any case, whether the atrophy be stationary or progressive; and that upon this depends its significance. An entire absence of atrophic change, however encouraging under certain circumstances, does not, under others, exclude the most unfavourable prognosis; while the presence of atrophy, to an evident degree, may sometimes depend upon a local error of nutrition, and may not necessarily lead to blindness.

The third important point on which our judgment must rest, is the mode of development of the disease and of the attendant symptoms.

We will first consider the occurrence of sudden or rapidly developed disturbance of vision—in the form of limitations of the field, sharply defined, and either hemiopic or concentric—of central scotomata—or of total blindness. It was formerly believed that all suddenly occurring pathological conditions were results of hemorrhagic effusion; but this belief is now greatly modified; and it is known that the causes of such conditions are not only various, but often very obscure. Even when impairment of vision follows hematemesis, or gastric derangement, or some exanthem, the connexion between antecedent and consequent is at present unexplained. In suddenly occurring cases we must usually be content to wait and observe before forming a prognosis; but, as a general rule, this may be more favourable in children than in adults; and even the total absence of perception of light does not preclude all hope of recovery, although it may continue for one or more weeks. Its longer duration, especially when associated with atrophic degeneration of the nerve, must be regarded as very unfavourable.

The gradually occurring cases are by very much the most frequent. As a rule, in cases originally favourable, the disorder occurs in both eyes at once. As regards our prognosis, *quoad* blindness, we are greatly helped when the disease remains for some time stationary. The worst forms make, indeed, occasional pauses; but these pauses seldom last longer than a month or two. A long period of arrest in the same condition, with a normal aspect of the nerve, and with no contraction or interruption of the field of vision, will permit a hope of recovery; since such cases are often successfully treated by careful attention to their constitutional causes.

In cases of contraction of the field of vision the method of development is of great importance. Hemiopic contractions, when not occasioned by apoplexy or encephalitis, sometimes depend upon some idiopathic and transitory change in one optic tract. Such changes may be effects of syphilis, or of obscure nervous conditions, which the progress of the disease may not always clear up. In such favourable cases, the development of the disease is usually rapid; and the acme is reached in the course of a few weeks. Sometimes, but very rarely, we observe temporal hemiopia with rather quick development, and we may conclude, from the complete recovery of such cases, that some transitory affection of the cruciate fasciculi of the optic nerve has occasioned them. I will not affirm that it is always practicable to distinguish at first these forms from those fatal to vision; but we may take as guides the rapid, almost simultaneous, and symmetrical development of the disease in both eyes—the relatively good central vision, not reduced below one-fourth or one-sixth—and that there is still complete integrity of the optic disc, after some weeks have already passed away. When one eye becomes completely blind in a comparatively short time, and the other, some months afterwards, remains completely sound, the ultimate prognosis for the latter is far more favourable than if the disease in the first eye had progressed slowly, and had rendered it only partly blind. In the first case there would probably be atrophy of one optic nerve in front of the chiasma, since it is highly improbable that the lateral fasciculus of one side, and the cruciate fasciculus of the other, should both be diseased without the participation of neighbouring fibres.

When considerable impairment of vision follows acute cerebral symptoms, we must not be too hasty to give an unfavourable opinion; since in such cases improvement may take place, and a certain amount of sight is often retained. We even see cases of complete blindness from acute affections of the brain, in which, after several weeks, or, exceptionally, several months of complete absence of all perception of light, some vision will return. We must be careful however, not to hold out delusive or groundless hopes; and, when long-continued blindness is associated with degeneration of the papilla, it is obvious that the chance of improvement is only slight, and can at best refer only to a small part of the visual field. But in the slowly advancing cases without marked brain symptoms, no improvement is possible, and only temporary arrest can be expected.

The worst possible cases are those in which, during some months

or years, one eye becomes gradually blind, with irregular lateral contraction of the field of vision, diminution of S., and atrophy of the disc; and in which the second eye follows the first at an uncertain interval.

There are, finally, many patients who seek relief, not on account of obviously defective sight, but on account of fatigue and pain which attend upon, or even altogether forbid, any prolonged exertion of the eyes. Some of these cases depend upon unsuspected hypermetropia or astigmatism, either of which conditions would be detected by the methods of examination already laid down. Others depend upon hyperesthesia of the retina, and are often relieved by blue spectacles. Others, again, depend upon weakness or insufficiency of the internal recti muscles, which become tired, and unable to maintain the convergence of the eyeballs required for close attention.

When the internal recti are weak, if we direct the patient to look steadily with both eyes at some object not much beyond his near point, and if we then interpose a hand, so as to shut out the object from one of his eyes, the eye thus excluded from the visual act will immediately lose its convergence, and wander outwards, usually beyond the median line. Distress from this affection is most common in myopic persons, who require to maintain habitually a greater degree of convergence than is necessary for others.

Art. XIII.—*Cases in Surgery.* By Edward Hamilton, F.R.C.S.I., one of the Surgeons to Dr. Steevens' Hospital.

EXTIRPATION OF THE THYROID BODY.

The operation of removal of the thyroid body, for the relief of bronchocele, has found little favour in the eyes of practical surgeons, as even the most superficial examination of its anatomical relations and connexions must impress us with the difficulties and dangers to be encountered in such a proceeding; the close proximity of the organ to the carotid artery, jugular vein, the trachea, larynx, and œsophagus; the large supply of vessels, both arteries and veins, so freely distributed to it from various sources, are almost sufficient in themselves to proscribe any operation for its excision; and when we consider that the diseases to which the organ is liable, although producing most unsightly deformity, do not usually threaten life or

interfere with vital functions for a considerable period of their duration, we cannot wonder that opinions such as the following have been expressed against operative interference:—

"Excision of the tumour is seldom to be thought of."—Erichsen.

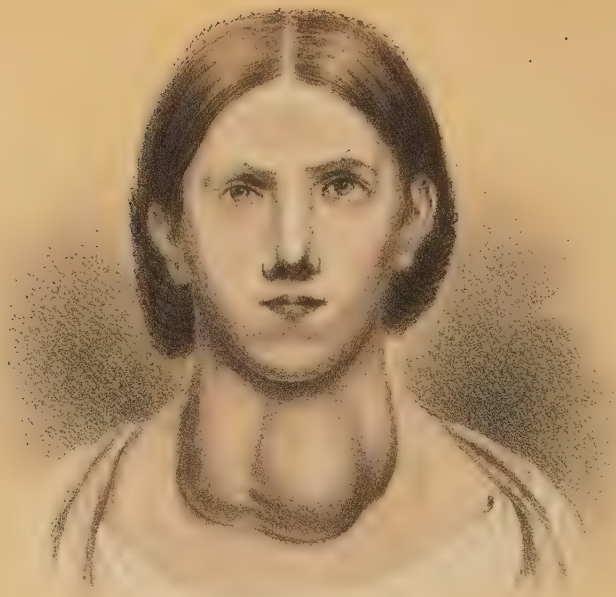
"The disease is such as should not at once be removed with knife, nor indeed should any attempt of the kind ever be made excepting under peculiar and urgent circumstances."—Fergusson.

"No operation is justifiable in such cases for the removal of deformity."—Liston.

"Attempted removal by knife would scarcely fail to prove fatal by hemorrhage."—Miller.

"Very dangerous and almost entirely to be forbidden."—Chelius.

Forcible interdictions such as these, emanating from the highest authorities in our profession, must command the deepest respect from every prudent and conscientious surgeon, and make him pause and anxiously deliberate before he determines on an undertaking so fraught with dangers and difficulties, and even cause him to shrink from it altogether; and yet cases occasionally present themselves to our notice which appeal so plaintively and forcibly to our sympathies as to make us reluctant to acknowledge the limited resources of our art, when we pronounce them beyond the pale of surgical interference, and tempt us from the beaten path of routine by a bold and decisive operation to get rid of an intractable disease, entailing on its unhappy victim consequences from which the sensitive female mind recoils almost as from death itself—conspicuous deformity, ever increasing and hopelessly incurable—such thoughts were suggested by the subject of this memoir. The history of the operation, while it records some sad and appalling failures, affords many examples of brilliant success; to none has so much honour in this department of surgery fallen as to Hedenus, who gives the details of six operations, the results of which were satisfactory. Sedillot records three successful cases; Graefe had two; Voisin, Voget, and Cabaret detail successful results, and many others are recorded in our own periodical literature, which leave us not without hope that in cases selected with care and judgment the operation may be attended with favourable results; and, as stated by Velpeau, we should be wrong in censuring in absolute terms the essays made to render us more familiar with this operation.



Forster & Co. Dublin

M. M., an interesting girl, aged sixteen, resident in the County of Meath, was admitted into Steevens' Hospital on the 10th of May last, presenting manifest enlargement of the thyroid body. The accompanying plate, by Forster, copied from a very graphic drawing by Connolly, will convey a more satisfactory idea of the appearance caused by the deformity than any verbal description. That portion of the enlargement marked A struck me as being more movable than bronchoceles usually are, gliding freely under the skin, as if attached by a pedicle; some large veins coursed over its surface. The tumour marked B seemed to be more fixed, to have much deeper connexions; the movement of this also produced some pain. Both portions of the tumour followed readily the motions of the larynx in deglutition; they were soft and elastic at points, giving an obscure sense of fluctuation. No pulsation or bruit could be observed. She suffered much from headaches and dizziness. The uterine functions were regularly performed. There was no evidence of cardiac disease, nor any proptosis. She stated that the disease was of six years standing; that she had been treated for it in many different ways; the swelling some times diminishing, but quickly regaining its size.

She was much fretted at the prospect of the continued deformity, and expressed her most urgent desire to submit to any operation rather than remain in her present condition. The extreme mobility of the tumour suggested to my mind the idea that it might be eradicated without any dissection after the free division of the integuments, and that the subsequent steps of its removal might be accomplished by the use of the écraseur without any serious risk of hemorrhage, which constitutes so formidable an obstacle to the proceeding.

While engaged writing this memoir I have found that I have been anticipated by Dr. Voss, who records a case thus treated with perfect success in *American Medical Times*, 1862. Having explained my views to my colleagues, in consultation, it was decided that the operation might be undertaken. The presence of the catamenia obliged us to defer it for some days.

On the 10th of June, chloroform having been administered, the patient lying on her back, a pillow placed under her neck, with the head well depressed, so as to make the tumour as prominent as possible, an incision three or four inches long was made in the middle line directly down on the tumour; the fascia connecting the sterno-hyoid and thyroid muscle was carefully divided on a

director to the same extent as the cutaneous incision; the finger was passed around the tumour on the left side, which was easily turned out; that on the right side with somewhat more difficulty, yet, still with wonderful facility; as they both protruded through the wound they pulsated very strongly, large vessels entering from all directions. Considerable bleeding issued from the lower part of the incision—bright, but yet not projected per saltum; there was also smart hemorrhage from the upper part; this must have proceeded from a number of small veins torn in turning out the tumour, as all use of the knife was avoided after the fascia was freed; the loss of blood was so great that we did not consider it advisable to wait for the slow action of the écraseur, but having raised up the tumour we passed a strong ligature around its neck, and proceeded to tie it firmly. This seemed to interfere in an alarming way with respiration, producing cough and much distress; we at once removed it, and having transfixed the narrow part with a ligature of very thick silk, tied each segment separately, and then cut away the tumour in front of the ligature. The surface bled very freely after its removal, but pressure commanded it without much difficulty; the patient was exceedingly faint from loss of blood; the wound was left exposed to the air, ice applied to the surface, and an intelligent dresser directed to remain constantly at the bed-side, and control any bleeding which might arise by pressure; bloody serum oozed for some time, but no further hemorrhage occurred. The great faintness required the constant administration of brandy, with small doses of opium.

Evening visit.—Patient has had some sleep; pulse 130; very thready. There had been some slight hemorrhage from the wound, induced by an attack of vomiting, which was easily arrested by digital pressure. The sides of the wound were supported by a single strap of adhesive plaster, but not brought together; a piece of ice on muslin was laid over it.

Ordered to continue brandy and opium, with strong beef-tea as a drink.

June 11.—Passed a quiet night; no return of bleeding; reddish serum in large quantity flows from the wound; pulse 120. The brandy to be given at longer intervals; to have beef-tea and arrow-root; complains of some soreness in swallowing.

Evening visit.—General appearance much improved; pulse 110; complains of some soreness in the wound, the edges of which present a slight blush of inflammation. Omit brandy and opium.

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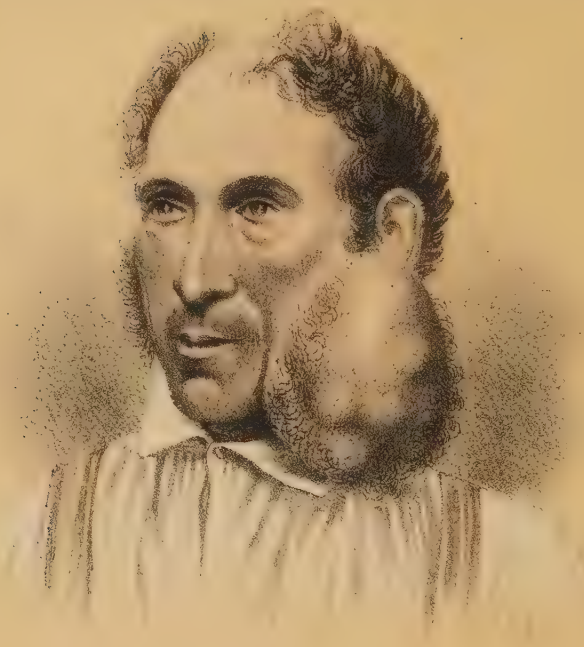

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June 12.—Continued improvement; pulse 100, full; complains of cough, which causes much distress, disturbing the wound. Ordered to have inhalation of steam, with a little gum in the mouth.

Evening visit.—Cough much relieved; less difficulty in swallowing; pulse 100. To have a full opiate; wound to be poulticed.

June 13.—Passed a very good night; pulse 98; wound suppurating; discharge somewhat fetid; cough very slight. Ordered warm dressing to the wound, with a linseed poultice; to have wine, with arrow-root, beef-tea.

June 14.—Wound suppurating freely, with a grey slough in the centre; pulse 95, firm; was somewhat restless in the night. Ordered an aperient draught, with sulphate of magnesia and infusion of roses.

June 15.—Passed a much better night; quite cheerful; pulse 90; ordered to have chicken.

June 16.—From this date the reports presented little variation of any interest, each day exhibiting marked improvement.

June 21.—Ligatures came away, being the 11th day after the operation. Allowed to leave her bed.

The lithograph shows her appearance on the 6th of July, before she left the hospital. A cross, suspended from a neck ribbon, served completely to conceal the small line of cicatrix which remained. She was much pleased and happy in her mind at the removal of the deformity.

On examining the tumour, the movable portion (A) presented the cystic variety of bronchocele, the other exhibited simply hypertrophied thyroid structure.

A LARGE TUMOUR OF THE PAROTID REGION SUCCESSFULLY REMOVED.

J. N., aged fifty, a strong healthy-looking man, residing in the country, presented a large tumour, occupying the lower part of the parotid region on the left side; it was globular in shape, and somewhat nodulated—the projections conveying a feeling of hardness. The integument covering it was vascular, but did not adhere to the tumour at any point. It was not tender to the touch, nor did it occasion any pain or inconvenience by its pressure, the deformity alone urging the patient to seek relief.

He states that it commenced, without any assignable cause, twenty or twenty-five years ago, as a small pea-like body, movable

under the skin; that its increase for the last two or three years has been very much more rapid than previously; his general health has always been good; had fever before the disease appeared. On careful examination the tumour was found to be perfectly movable and unconnected with any important structures, the external jugular vein was the only vessel of any size in danger; its removal was accordingly at once determined on. On Saturday, August 5, chloroform having been administered, a curved incision was made obliquely over the tumour, from the lobe of the ear to an inch in front of and below the angle of the lower jaw; a second curved incision between the same points included an oval portion of the skin, which was removed along with the tumour; the skin was carefully dissected back from each side, while the growth was steadied with a vulsellum, and well raised from its bed by my colleague, Dr. Symes; by means of the finger passed around it, and a few touches of the knife, it was turned out without difficulty. The bleeding vessels were now carefully secured, requiring five ligatures. Cold water was poured over the bleeding surface to wash away clots and cause immediate contraction of the smaller vessels, as I was most anxious to avoid any collection of blood in the cavity which might tend to unhealthy inflammation. The external jugular vein appeared of large size at the bottom of the wound, but was carefully avoided; the edges were united by sutures of silk, a large compress being placed over each flap, and finally secured in its place by a bandage, so as to prevent pouching. The patient was placed in bed, and a full opiate administered.

Evening visit.—Has been very easy, having had some sleep; pulse 90; no appearance of bleeding.

August 7.—Passed a quiet night, is now somewhat feverish; skin hot; tongue coated; pulse 100. Stitches were all removed—a process much facilitated by having left one end of the silk sufficiently long for traction. Cold was still applied to the surface.

8th.—Skin cooler; tongue cleaning; no pain in the wound, which was ordered to be poulticed every six hours; to have beef-tea.

9th.—Wound suppurating freely, matter discharged along the ligatures; treatment continued.

10th.—One ligature away.

14th.—Two ligatures away.

16th.—Remaining ligatures detached.

The tumour weighed 1lb. 4oz.; its external surface was vascular; on section it presented a whitish granular appearance, resembling

boiled rice; a soft pulpy material oozed from it; the granular matter was composed of small cyst-like bodies; the denser nodulated portions cut like true cartilage, and exhibited, under the microscope, cells almost identical with that structure.

Art. XIV.—*Diphtheria and Diphtherial Paralysis.* By W. J. Cummins, M.D., Member of the King and Queen's College of Physicians; Physician to the Cork Dispensary, &c., &c.

The question is often asked, "is not diphtheria a new disease?" and in Ireland it may be answered that it is still so far new that many physicians of experience have never seen a case, while to the majority the instances that do present themselves appear rather as curiosities than as harbingers of a pestilence which seems gradually establishing itself amongst us. But although unknown until lately by the present generation, diphtheria is by no means a new disease, for besides having been described by Fothergill in 1728, and in France, by Bretonneau, under the name of "Diphtherite," in 1821, accounts of various epidemics are to be met scattered through the medical literature of Europe for the last 350 years—(Gibb[a]). Bretonneau, in his second memoir, tells us that "ever since the end of the sixteenth century diphtherite has almost constantly shown itself in every region of the old and new continents. At first it continued for a long time in Spain, and during nearly forty years was noticed in different parts of the Peninsula. Rather later all Italy was successively afflicted by it. . . . In two years it killed more than 5,000 persons in Naples. . . . Towards the middle of the last century epidemics prevailed in England, France, Sweden, and America."

Since the re-appearance of this disease it seems to have spread in England and Scotland much more rapidly than in Ireland—where, judging from the Registrar-General's report for 1864, it has prevailed more extensively, and been more fatal in the north than the south.

We find, however, occasional mention of it in the Transactions of the Cork Medical Society, which, as a permanent record of the

[a] Diseases of the Throat and Windpipe.

diseases of the South of Ireland, has proved so valuable. Professor O'Connor read a paper on the subject in 1860, describing a localized epidemic which occurred in a boarding school near Cork, due to an importation of the disease from Dublin.

Dr. William Townsend described an epidemic which prevailed in the Cork Union in December, 1862, and laid before the society specimens taken from two fatal cases. He remarked that "in some cases the patients are quite amenable to treatment, and yet sink rapidly; in others they are restless and unmanageable, the disease extending into the larynx and air tubes, the breathing becomes difficult, and the patient dies asphyxiated. . . . In some cases treatment seems to be of no avail, the patients sinking without an effort, as if the local symptoms were merely the outward manifestations of a poisoning of the system. In others, after a struggle of several days, the severe symptoms subside, &c., &c. . . . In my experience," he adds, "the convalescence is greatly protracted." Professor O'Connor says, that in all his cases the tonsils were coated with lymph, and that the pharynx was "more or less inflamed, and of a dark red colour." He dwells much on the "predominance of the nerve-poisoning over the local symptoms," all the cases presenting a peculiar expression of languor. In the same Transactions we find an account of an epidemic which occurred in the practice of Dr. Luther, of Clashmore, Co. Waterford, in 1864, paralysis occurring as a sequel in some cases.

Dr. N. Hobart mentioned, last session, at the society, that he also had seen a number of cases about the same time in the Douglas Dispensary district. On the whole, very few have occurred among the better classes in Cork, and such as have, generally proved fatal, so as to afford no time for a study of their sequelæ.

During last Winter diphtheria broke out in Blackrock, about a mile or so from Cork, and several cases occurred rapidly, one after another; while, at the same time, sore throats of a most severe description, many of them presenting obscure traces of a diphtheritic character, were prevalent.[b]

The first case of true diphtheria, a child about two years of age, was remarkably free from any pellicular exudation on the throat,

[a] Dr. Greenhow, in his work on diphtheria tells us that Dr. Fleming, when Professor of Materia Medica in Cork, saw two well marked cases of diphtheria in the year 1856.

[b] Dr. Jenner notices the prevalence of sore throats during epidemics of diphtheria, and suggests a resemblance in this particular to the diarrhea which accompanies epidemic cholera.

which although very much congested could not be recognized as due to a specific disease. There was much attendant debility; and after about a fortnight, when the local soreness had gone, an almost complete inability to swallow set in, fluids returning, on the instant, through the nose; at the same time there was great weakness of the lower limbs, with general feebleness and anemia. A day or two afterwards there was complete paraplegia, involving both sensation and motion, the anesthesia extending upwards almost to the umbilicus. Next morning I was sent for in a great hurry, dyspnea having set in the night before, and increased rapidly. The patient was livid and gasping when I saw him; quantities of frothy mucus so completely filling the mouth that it was impossible to view the throat. In less than half an hour he died.

About the same time I attended a young lady who had the membraneous exudation of diphtheria upon the back of the pharynx, but recovered rapidly. Her mother, who slept in the bed with her, was next attacked, and suffered much more severely, the exudation being like moist chamois leather on the pharynx, and here and there on the tonsils and palate; while the gums, hard palate, and inside of cheeks were covered with a thin, pearly-coloured membrane, which seemed almost transparent in some parts.

The local affection lasted for nearly ten days in this case, when it gradually subsided; a small abscess containing healthy pus forming on the anterior surface of soft palate. During the greater part of her illness this lady was prevented from obtaining any rest by the quantity of "scalding" fluid which exuded from the throat and mouth, obliging her to keep her head continually over a vessel. The servant who attended her was next affected; the disease assuming the laryngeal form, marked by croupy breathing and cough. She also recovered. At the same time a lady from the country brought her little girl to spend a week with some friends residing on the same terrace with the family just mentioned. They returned home on Saturday, on which morning the little girl, before starting, complained of her throat. Towards evening she became feverish, and spent a restless, delirious night, complaining much of her throat. Next morning the family physician saw her. On Monday she was so much worse that another medical man was called in, but without avail, as she died asphyxiated about twenty-four hours after. The local disease could not have presented an appearance very characteristic of diphtheria, as her illness was supposed to be suppressed scarlatina. That, however, is no proof that

it may not have been a case of diphtheria, as it is well known that the peculiar throat affection may be entirely absent in that disease.[a]

This child was carefully watched and attended by her mother, who breathed her breath continually, and thus absorbed the poison which had proved so fatal. She was next attacked, and then the whole family commenced taking the bi-sulphite of soda, and continued it steadily for many weeks. They all escaped. On the third day of this lady's illness (January 21st) I was telegraphed for, and met the family physician in consultation that night. The patient was in an exceedingly low, nervous condition, complaining much of tightness about the upper part of the chest; breathing laryngeal, and much oppressed; thin diphtheritic exudation appeared on the alveoli; and the throat was partially covered with a more dense membrane, which hung loose at the left side, where it was also most completely formed; the parts of the throat free from exudation were of a dusky red colour. I removed the loose pellicle at the left side, with forceps, and prescribed a gargle of the muriated tincture of iron, which brought away much more of the same. I also suggested, for the consideration of the medical attendants, at their meeting next morning, the internal use of the same tincture. I was subsequently informed that she was much worse the following day, the breathing being more oppressed; the gentlemen who had charge of the case then prescribed the internal treatment I had recommended, when she began to improve, and progressed steadily and favourably towards recovery; so much so that in three or four weeks she was able to swallow perfectly well, and drive out every day. Towards the end of February I was written to about a fidgetty nervous sensation in the lower limbs, which was relieved immediately by friction with an anodyne liniment. Shortly after the catamenia appeared, and from that time forward there was a gradually increasing difficulty of deglutition. Solids, such as meat, could not be swallowed at all, and fluids of all kinds returned

[a] The membrane of diphtheria is met on the skin, interior of ear, vagina, rectum, &c., without any throat affection; but even when the latter is the part attacked there may be nothing to distinguish it from an ordinary inflammation.

Such a case is given by Dr. Latham Ormerod, in the Lancet (December 7, 1861). The patient was in hospital throughout his whole course, and was supposed, for some days, judging merely from the appearance of his throat, to have common quinsy; yet he had subsequent paraplegia and paralysis of the soft palate, just as after typical diphtheria.

immediately through the nose.[a] I prescribed (by letter) in the commencement of these symptoms, pills containing quinine and ext. nucis vomicæ (half a grain of the latter) three times daily; but the disease still continuing to progress, I ordered her up to town, to be near me.

She arrived on the 3rd of March in an exceedingly weak, anemic condition; pulse feeble, 120; breathing rapid and short; voice exactly that of a person with cleft palate; unable to swallow solids, while fluids returned in streams through the nose, not a drop passing down. Semi-solids can be swallowed in teaspoonfuls. There has been occasional dimness of vision, and a sensation of numbness in the upper part of right thigh, felt only for a short time after she wakes in the morning. The symptoms are decidedly on the increase; there is great depression of spirits, and a tendency to constipation. Some hardness and fulness of the cellular tissue, beneath the jaw, exists, and prevents her opening the mouth fully. This was ordered to be rubbed with a liniment composed of half a drachm of the linimentum iodi of the British Pharmacopeia; and seven drachms and a-half of camphor liniment, and a pill to be taken thrice daily, composed of one grain and a-half of the extract of nux vomica of the British Pharmacopeia, two grains of sulphate of quinine and extract of hyosciamus.

Beaten up eggs, jelly, beef-tea thickened, port wine, and semi-solids of various kinds were taken in teaspoonfuls continually.

Next day, March 4th, I increased the dose of nux vomica to three grains.

On the 5th she was much the same way; but before I left the house had an attack which seemed, at the time, to be hysterical, but which, when it afterwards recurred, I found was due to the pills.

Dr. E. Townsend saw her with me that afternoon, and coincided in my opinion as to the nature of the case and its treatment. He continued in attendance, and took much interest in watching its curious phenomena.

7th.—Each pill has since produced the nervous symptoms, simulating hysteria, as well as twitching of the voluntary muscles.

8th.—The effect of the medicine increases.

10th.—The physiological effect of the nux vomica which she has

[a] "The medulla oblongata appears to be the centre whence are derived the motor impulses, enabling the muscles of the palate, pharynx, and œsophagus to produce the successive co-ordinate and adapted movements necessary to the act of deglutition."—Kirkes' Manual of Physiology.

since been taking in three grain doses, three times a-day, is most marked and curious. It commences by day, from an hour to an hour and half after taking the pill, and continues from an hour to an hour and half. The pill taken at bed time does not begin to affect her till two or two hours and a-half after taking it, when it wakens her out of sleep, and keeps her awake a little more than an hour. During the intervals of the action of the medicine she is *quite* free from its effects, but while under its influence her condition is most remarkable. She calls it "her electricity," a name most appropriate. If she attempts to convey a spoonful of food to her mouth it is carried with a jerk to her nose, or some other part of the face; if she attempts to walk her limbs start away from under her; sometimes she jumps up with a start and a scream, caused by sudden spasm; hyperesthesia of the cutaneous surface, especially of the face, exists to such an extent that if touched "a thrill is sent to every part of the body." Throughout the primary illness the left side was more affected than the right, and it is so still; but she describes the spasms as commencing sometimes in the eyes, and sometimes in the back of the neck. The swelling below the jaw has almost disappeared, and the power of swallowing is gradually returning; the tone of voice has changed from that of a person with cleft palate to that of one with too large a tongue. She also complains of the left side of tongue feeling numb and enlarged; but on examination it is not found to be so.[a]

13th.—Since last report the pills have been taken regularly three times a-day, and an hour or so after each the phenomena above described have regularly occurred without any increase in duration or intensity until this day, when the afternoon pill acted much more vigorously than any former one, its effect also continuing several hours. There is now a most decided improvement in the power of deglutition, a large part of the fluid taken passing down; pulse is reduced to from 80 to 90, and the tongue has cleaned. The respiratory distress has almost quite gone.

14th.—She was desired to take only one pill in the afternoon to-day, the effect of which was not more severe nor permanent than on the days preceding yesterday.

[a] This sensation was caused by an affection of the hypoglossal nerves, derived from the medulla oblongata. "Schroder Van der Kolk has brought forward much evidence to prove that the corpora olivaria are accessory ganglia, the main use of which is to communicate simultaneously to the hypoglossal nerves the multitudinous combinations of muscular movements required in speech, and thus produce a uniform action of both sides of the tongue."—Kirkes' Manual of Physiology.

15th.—To take one pill twice a-day.

18th.—Pills have been continued twice a-day since, each one producing the same effect as before the 13th; the catamenia being now due they were omitted entirely.

20th.—Catamenia present. She can now drink perfectly well, but complains a great deal of numbness of feet and hands. She also, occasionally, sees double when looking at an object five or six yards distant, although she can see well enough to read and sew. She cannot walk as well as before, and is unable to feel the ground under her; so much so that she would fall if she did not regulate her movements by her eyes. The feet also feel heavy. To return to the pills twice a-day.

22nd.—Pills affect her just as before, only with greater intensity and duration; so much so that the effect of one dose almost overtakes that of the next. I accordingly omitted them and prescribed one of half the strength twice daily.

25th.—The pills containing one and a-half grains nux vomica have produced no effect; numbness of limbs have increased, and she seems anemic and weak. I prescribed twenty drops of the tincture of the perchloride of iron three times a-day, and to continue the half pills twice a-day.

April 2nd.—The half pills having produced no effect I desired her to return to the three grain pills twice a-day.

3rd.—Has taken only two pills, each of which produced most violent effects; so I directed only half a pill to be taken three times a-day.

13th.—Much better; general health improving greatly; voice and deglutition have continued perfect; amblyopia is never complained of now; sensibility of feet and hands is returning fast, and power of walking is increased. Has been taking the one and a-half grains of nux vomica three times a-day ever since, with no increase of physiological effect, and with decided benefit in every way.

I made no further note of the case, but my patient steadily improved, and with the exception of a sensation of weight in the feet, on over exercise, for which she takes hot salt-water baths, health is now (June 27th) perfectly restored.

This case confirms an observation of Dr. Jenner, that when one side of the throat is more severely affected than the other by the primary disease the subsequent paralysis is most severe at that side; but the most interesting point in its history is the peculiar action

of nux vomica, which struck both Dr. Townsend and myself as being something unusual.[a]

It may be well briefly to review the case with special reference to this point, as it is extremely interesting in its bearing upon therapeutics and toxicology. The patient had been taking half a grain of the extract of nux vomica of the British Pharmacopeia while in the country, thrice a-day; after her arrival in town she took, during the first day, a grain and half, and during the second three grains three times a-day, after which the physiological effect of the medicine was first noticed. This, as has already been described, commenced from an hour to an hour and half after each dose by day, and lasted about the same time; at night the interval between the dose of the medicine and its effects was rather longer. When three grains, three times a-day, had been taken, during nine days, the effects had arrived at their maximum, and one dose had begun to overtake another in the system. The effects attributed to each pill could not have proceeded from any other cause, as the regular sequence of events occurred too frequently not to establish a connexion between them; but if there was room for doubt the after history of the case completely removed it. Thus—the pills were omitted for two days during menstruation and there were no symptoms such as had invariably followed each dose; they were then resumed *twice* a-day, and each produced a most intense and unmistakable effect. The dose was then reduced to a grain and half *twice* a-day, and continued for eleven days without once manifesting the least effect; the patient then returned to the pill of three grains twice a-day; two doses only were taken when they had to be discontinued, so severe had been the effect of each. A grain and half was then taken three times a-day, and after ten days it was noted that the physiological effect of the medicine had not increased, that the general health had greatly improved, and the paralysis almost disappeared. The preparation used in this case was that of the British Pharmacopeia, and was procured from Mr. Brady, of Bridge-street. If we could always judge as accurately, from the immediate effect of poisonous medicines, when to increase and when to diminish the dose, they would be more manageable than we generally find them. Judging from this case it would seem that the

[a] From the evidence of the celebrated Palmer trial it would appear that from half to three quarters of a grain of strychnine is sufficient to kill a human being, and that from five minutes to an hour may elapse, according to the quantity administered, between taking the medicine and its first effect.

extract is much to be preferred to the alkaloid strychnia in diphtherial paralysis, as it is more manageable. The gradual cumulative tendency of the medicine is also well illustrated, as towards the end of the treatment the dose which had before produced simply physiological effects acted so powerfully as almost to amount to poisoning; and that a portion of the medicine was retained in the system after it had been discontinued for two days, is proved by the complete intolerance of three-grain doses when resumed after that interval.

Paralysis such as we have described, during convalescence from diphtheria, commencing with the muscles of the soft palate and constrictors of the pharynx, and gradually extending, is not uncommon. A similar one has been graphically described in the *Edinburgh Journal*, Vol. CXVII., by Dr. Joseph Bell. Another of the same kind, but less severe, is so well related by the sufferer himself in the following letter, that I transcribe it. He says:—

"I had a very bad attack of diphtheria, and lost twenty-four hours of skilful treatment. . . . . C. at once used caustic most severely, and continued so to use it for several days, and thus checked the disease. I suffered a great deal from the pain of swallowing, but did not otherwise feel very ill at the time; but after my throat began somewhat to recover, and after I had been able to return home, I began to experience an extraordinary difficulty of swallowing. Soon after I began to feel what I thought was merely weakness, but which was, in fact, incipient paralysis in my legs, and I had great difficulty in getting up and down stairs, and into my carriage (a waggonette with one step). Gradually this extended to my hands, and I could with difficulty button my clothes. I could scarcely write, and then an almost illegible scrawl; and all these symptoms kept on increasing while the local soreness of the throat was quite healed. I wrote for advice to C. He ordered me change of air and scene, to take a bath morning and evening as hot as I could bear it, with a person to rub me hard while in the bath. I got myself regularly rubbed by a strong coachman, who *curried* me pretty much as he would a horse; this in the bath, with water as hot as I could bear it. I took as much nourishment as possible in small quantities frequently (especially flummery with cream, morning and night). I moved about, first to A., then to L., then to D., intending afterwards to try the Turkish bath at Blarney, but I got so much better in the

course of a month of touring about, always keeping up the treatment as to hot bathing, and frequent feeding, also taking syrup of bark and some other tonics, that I found I had no occasion to resort to the Turkish bath."

Dr. O'Connor describes the paralysis which occurred in one of his cases as follows:—

"In about ten days from the commencement of the attack, this child had apparently recovered. Her throat was quite well—there was no difficulty in swallowing—still the voice had not its natural tone, and there was great muscular debility in the whole body. When walking she occasionally tottered in her gait, and felt a reeling in her head, which made her unwilling to leave her chair. She complained of motes flying before her eyes, and sometimes lost her sight for several minutes, accompanied with a ringing in her ears of a most distressing kind. In this case I examined the state of the urine, which contained no albumen. The child continued in this most distressing state nearly three months, although during the entire time her appetite was very good, and her general appearance showed no sign of delicacy. She finally recovered perfectly."

Dr. Kidd, of Dublin, in a letter, which he has kindly permitted me to make use of, says:—

"I had a very interesting case of paralysis after diphtheria some months ago in a lady aged about forty-five or fifty. The primary attack was slight, and occurred in October: my attendance began on the 6th and ended on the 15th. In the middle of December she began to complain of numbness in her feet, and cramps in her legs, gradually extending towards the knees, and soon affecting the hands; this was accompanied with great muscular weakness; she drove to my house on 21st December, having walked part of the way from R., but in the following week she could not go up or down stairs, and the want of power increased so much that she became unable to walk across the floor without help; several times she fell, and had to be lifted into bed, but could move her limbs freely while lying there; sensation seemed perfect; when tried with a pair of compasses, she could recognize the distance of the points all through her illness on both hands and feet. The power of directing movements was also perfect; she could lift a pin and hold

it; and could touch any part of the floor she aimed at with her toe; at no time was there difficulty in swallowing; once the throat healed; pulse ranged from 120 to 100—small and feeble. I treated her with citrate of iron and quinine, as recommended, I think, by Jenner. She herself dated the beginning of her improvement from the action of a dose of blue pill and colocynth. I also made her bathe the feet and legs in mustard and water every night, and use a stimulating liniment. She made a perfect recovery. It seemed to me to be muscular debility from blood-poisoning rather than nervous."

This last remark of Dr. Kidd's suggests for our consideration the very important question:—What is the cause of diphtherial paralysis? We have now had the particulars of several cases before us, and many more may be studied in the works of Dr. Greenhow and other writers on diphtheria; but before entering into the question, it may be well to quote from the year book for 1863, a sort of summary taken from a paper by M. Roger (*Archiv. Gen.* January and February, 1862), who gives thirty-six cases, viz.:—twenty-seven of the throat and soft palate, sixteen of which died; and seven of general paralysis, of which two were fatal. The same author tells us that the localization of the primary diphtheria was pharyngeal in twelve cases; laryngeal in twenty-three; and cutaneous in two. That among the twelve pharyngeal, paralysis of the velum palati followed ten times; palsy of the sphincter ani once; and amblyopia once. That four of the ten cases of velum paralysis were uncomplicated; four had extensive paralysis; and two, paraplegia. In the pharyngo-laryngeal cases there was almost always paralysis of the pharynx. One child who had exudation of the mastoid region, and external auditory meatus, suffered from palatal paralysis and throat affection. The rectum and bladder were paralysed in two instances.

The various cases of diphtherial paralysis now before us afford ample opportunity of studying the clinical features of the disease, which we find to correspond more with those forms of paralysis denominated functional, than with those which depend upon organic disease. Dr. Handfield Jones tells us, in his excellent work on the nervous system, that in the published *post mortem* examination of cases of diphtherial paralysis no organic change has been found in the nervous centres, except in one case where hemiplegia of the right side was found associated with a small suppurated spot in the

left cerebral hemisphere. This was probably a coincidence; so we may conclude that diphtherial paralysis is functional, and proceed with our investigation as to its cause.

Virchow (*Arch.* 25, p. 114, 1862),[a] suggests that it may depend on primary peripheral alteration of the nerves, propagated from the originally affected parts to the special centre, much in the same way as in tetanus the irritation is propagated from the wound.

The experiments of Comhaire, more than half a century ago, and those of Brown-Séquard, of the present day, have demonstrated the possibility of paralysis being caused by irritation, propagated along a sentient or afferent nerve to a nervous centre, the effect being manifested in the parts supplied by that centre. The latter great nervous pathologist has explained this apparent anomaly by proving that the immediate effect of the irritant in such cases is a spasmodic contraction of the blood vessels supplying the centre, and loss of its function consequent on imperfect nutrition. Such an explanation might be applied to diphtherial paralysis, if the latter occurred during the existence of the primary local disease; but it has been shown that it does not generally occur until all local irritation has subsided, and it is known that as long a period as two months (Jenner), or even four months (Eade), may elapse between the primary disease and the consecutive paralysis.

Dr. Gull suggests that the paralysis of diphtheria may be due to the local affection extending by continuity of structure from the fauces to the upper part of the spinal cord; and it has been also supposed that the original zymotic poison may directly affect the nervous centres, and cause paralysis in the same way that other poisons, such as urea, lead, or arsenic produce it: but the length of time which elapses between the primary and secondary affections negatives both these hypotheses. Dr. H. Jones (*ante cit.*) thinks that some special modification of the original poison may be generated in the system, and the occasional occurrence of albuminuria at all periods of the disease, has, with some show of reason, been connected with the palsy. But paralysis often occurs after diphtheria where there has been no albuminuria (Sanderson, Roger), and the symptoms which accompany the paralysis do not afford any confirmation of Dr. Jones' supposition, while the frequency of recovery, without the administration of any chemical antidote, or any special evacuation from the system, is an additional reason for

[a] Year Book, 1863.

believing that no poison has been generated in the blood. To understand the sequelæ of diphtheria we must go backwards and study the nature of the original disease, or rather of the class of disease to which it belongs.

In zymotic diseases we have manifest evidence of a poison received from without, contaminating the blood—reproducing itself a hundred fold upon some constituent of that fluid; and, in doing so, destroying that constituent for a time. That this series of events takes place is abundantly proved by the result of inoculation with various poisons.

Thus—a successful vaccination leaves the system to all appearance in the same state that it was before, but in reality minus a something, that something being the constituent of the blood, at the expense of which the virus had been reproduced.[a] The same operation cannot be again performed successfully for many years because this constituent is wanting.

Now if we suppose the "something" which is absent from the blood after vaccination to be a constituent essential to the nutrition of any particular part of the body, it is obvious that the function of that part will be in abeyance until the element of its nutrition is restored?

Let us apply this to diphtherial paralysis: the zymotic poison of the disease undoubtedly reproduces itself within the system; to do so, it must diminish or destroy some constituent of the blood. Subsequent events occur which may be explained by a want of due nutrition of the nervous system. May we not then fairly infer that what has been taken out of the blood is what the nervous system requires? Now it is quite evident that the poison of diphtheria does not entirely destroy that constituent of the blood on which it

[a] "The assimilation of the new materials to the blood must be perfect in regard to all those immeasurably minute particulars by which the blood is adapted for the nutrition of every tissue, and the maintenance of every peculiarity of each. How precise the assimilation must be for such an adaptation may be conceived from some of the cases in which the blood is altered by disease, and by assimilation is maintained in its altered state. For example—by the insertion of vaccine matter the blood is for a short time manifestly diseased; however minute the portion of virus, it affects and alters in some way the whole of the blood. And the alteration thus produced, inconceivably slight as it must be, is long maintained, for even very long after a successful vaccination a second insertion of the virus may have no effect, the blood being no longer amenable to its influence; because the new blood, formed after the vaccination, is made like the blood altered by the vaccine virus; in other words, the blood exactly assimilates to its altered self the materials derived from the lymph and chyle."—Kirkes' Manual of Physiology.

acts; it is not a disease like small-pox or scarlatina, which rarely occur more than once in a lifetime, and when they do, in a modified form; on the contrary, relapses are not infrequent, and a second attack is often as severe as the first. We may conclude, therefore, that the material on which the poison of the disease reproduces itself is regenerated in the blood, within a short period—probably a few months—and, that although always diminished, it is rarely, if ever, completely destroyed. This explains why paralysis does not always follow diphtheria, and also why some nerves suffer more than others.

The saying of Treviranus, that each part of the body, by taking from the blood the material it requires for its maintenance, stands in the relation of an excretory organ to the rest, may be applied in altered sense to the subject before us; for when the nutriment of any extended tissue, such as the nervous system, exists in the blood in diminished quantity, any part of that tissue which draws from the blood the normal amount of nutriment, does so at the expense of the other parts. Now we may suppose that the nerves of the throat suffer, in common with all its tissues, in the local affection of diphtheria, and we may well conceive, that in their subsequent debilitated condition, they would be less able to appropriate from the blood the material of their renovation, when it exists in diminished quantity, than parts which had not so suffered.

This may explain what has been noticed in the majority of cases of diphtherial paralysis, that the nerves of the palate and pharynx are those first affected; and it may also help us to understand the phenomena which occurred in the sixth case alluded to in this paper—remarked, too, by Dr. Gibb in one of his cases—that general paralysis may supervene upon a rapid disappearance of the affection of the pharyngeal nerves.

The view we have taken of the pathology of this affection is also borne out by what was more than once noticed in the same case, viz., an aggravation of the paralysis after each catamenial period—the normal loss of blood of course diminishing still further the vitality of the nerves, and thus aggravating the paralysis. Had the latter been due to blood poisoning the menstrual flow must have tended to relieve it by carrying off some of the poison.

This view is further confirmed by the result of treatment, as most cases recover under the influence of nourishment, time, and nerve tonics, not requiring any eliminating remedies. The contrast, in this particular, between the treatment of the sequelæ of diphtheria

and of scarlatina is very great, as we know that in the latter there is no safety for the patient as long as the poison (urea) is circulating in the blood.

It is probable that in many cases of diphtherial paralysis a cure may be effected by time and nourishment alone; but when there is any affection whatever of respiration, it is necessary to stimulate the affected nerves by nerve tonics, such as nux vomica, and perhaps electricity. The danger of sudden death is imminent in such cases, and it is fortunate we have a remedy so powerful in its action and so immediate in its effects as nux vomica

But we must not pass over the remarkable tendency to sudden death, which exists both in diphtheria and its sequelæ, with this brief notice, as it is one of the most interesting points connected with the disease. A case has already been given where more than usually complete paraplegia, associated with paralysis of the pharyngeal branches of the pneumogastric nerves, became suddenly complicated by extreme dyspnea, and terminated fatally in a few hours;[a] another has been mentioned where also the respiratory nerves were implicated to a considerable extent, but in the following case it is doubtful whether the sudden death was attributable to paralysis of the pulmonary or the cardiac branches of the par vagum.

Master K., aged two and a-half years, was attacked on the 19th of the present month (June), with what was supposed to be a heavy cold, accompanying dentition. I saw him on the 20th, when a thin ichor was flowing from the nostrils, which seemed to be stopped, causing a peculiar snoring respiration; deglutition was easy, and unaccompanied by pain. On examination, I found the throat much swollen, and of a deep red colour, but could not see beyond the tonsils. The child was anemic and weak, requiring constant support from the first. Next day I was able to examine the pharynx, and found it covered with a thick yellow exudation; this was brushed twice a day with a strong solution of nitrate of silver, while bark and muriatic acid were taken internally. There was also

[a] "Division of both pneumogastric trunks, or of both their recurrent branches, is often very quickly fatal in young animals; but in old animals the division of the recurrent nerve is not generally fatal, and that of both the pneumogastric trunks is not always fatal (J. Reid, *l. c.*); and when it is so death ensues slowly. This difference is probably because *the yielding of the cartilages of the larynx in young animals permits the glottis to be closed by the atmospheric pressure in inspiration*, and they are thus quickly suffocated unless tracheotomy be performed" (Legallois cxxxix.).—Kirkes' Manual of Physiology. May not the death of this *young* child be so explained?

some tumefaction under the angle of the jaw at both sides. On the 23rd the membrane became loose, and a large thick mass (which the nurse thought was a piece of meat) came away while I was brushing the throat. After this the symptoms were gradually relieved; and although there was partial reproduction of the membrane, it gave no further trouble. The tincture of the perchloride of iron was substituted for the bark mixture, and continued for a day or two; and on the 25th the throat was quite free from membrane, appearing merely congested; in other respects also the child appeared to be recovering fast, although still very languid, weak, and anemic. On that day, however, the nurse called my attention to a peculiar stop in the respiration, which she had noticed occasionally during the last twelve hours. It was simply a cessation of breathing for some seconds, *unattended by distress of any kind, and not followed by gasping, sighing, or any effort to compensate for the time lost.* It appeared more an absence of the necessity for respiration than a difficulty of performing the function.

On the morning of the 26th some spots of purpura were visible on the exremities, but the breathing was improved; throat almost well, and the child seemed better in every respect.

As the pause in respiration, though less frequent, still continued at times, my anxiety as to the result was not removed.

The little patient spent a good day, swallowing quite well, and seeming more lively and like himself than he had been; but late in the evening, while playing on his nurse's lap, he suddenly expired.

It is of the greatest importance to be able to detect any peculiar tendency to sudden death, in time to warn the patient's friends that it may occur, and also with a view of endeavouring to obviate it if possible The peculiar stop in the breathing noted in this case, may be looked upon as an important element in the diagnosis, and should lead to a peculiarly guarded prognosis.

Its cause may have been either in the cardiac or pulmonary branches of the par vagum. If the former, it was directly due to absence of that stimulus to respiration which the presence in the lung of the blood derived from the right ventricle of the heart affords; and if the latter, to a want of the "impulses producing the respiratory movements," which originate in the medulla oblongata.[a]

[a] "The conclusion therefore may safely be, that this part of the medulla oblongata (the interior of that part from which the pneumogastric nerves arise) is the nervous centre wherein *the impulses producing the respiratory movements chiefly originate*, and whence they issue in rhythm and adaptation."—Kirkes' Manual of Physiology

Paralysis of the cardiac branches of the par vagum is generally indicated for some time before death by the pulse gradually becoming slower and more feeble. Dr. Gibb gives a case where the pulse came down to 32, 24, and even 16, in the minute—the patient at last dying suddenly. Dr. Greenhow mentions a somewhat similar case which terminated suddenly on the 19th day. There had been irritable stomach, vertigo, swimming of the head, and temporary loss of consciousness; on the 17th day the pulse was only 40; on the 18th, 32; and on the morning of the last day of life, as low as 24; suddenly rising to 70 or 80 on the patient being disturbed.

A patient of Professor O'Connor's, when ill about three weeks, had "extreme weakness of the pulse, coldness of the skin, and languor of countenance—not easily explained by the local affection; her intellect was at all times clear, and she talked freely with her attendants, though her utterance was not distinct, owing to the paralyzed condition of the muscles of the palate. While in this state she sat up in bed to take a drink, fell back, and expired."

The affection of the nerves of the heart, which these cases illustrate, must be distinguished from another complication of diphtheria, in which structural changes take place in the heart itself. Dr. Bridger (*Med. Times and Gazette*), gives as the result of twenty-four *post mortem* examinations which he made, a roughened, reddened, and thickened appearance of the auriculo-ventricular valves, an affection which, he says, may be diagnosed by anxious countenance, hurried respiration, pulse 120 to 170, precordial tenderness, &c. He adds that there were about 100 heart cases out of 1,000.

Besides the various causes of sudden death now enumerated, suffocation may ensue, especially in young children, as M. Roger remarks, during attempts at swallowing.

We have indeed full confirmation of the opinion of Dr. Greenhow that "sudden death in patients the aspect of whose case is not alarming, or who appear out of danger, is a peculiar characteristic of diphtheria."

Dr. Carr of Blackheath, also says, "extreme suddenness of death is one of the most marked characteristics of true diphtheria."

Sudden death would be even more frequent after diphtheria than it is, were it not that the respiratory nerves have a power of retaining their vitality longer than others. "In persons under the influence of ether or chloroform, the power of the medulla oblongata to combine in action all the nerves of the respiratory muscles *outlives the irritation of the pharynx*, which, on irritation, will not produce movements of swallowing, or closure of the glottis, so that blood may run into the lungs or stomach."—*Ibid.*

The peculiar form of paralysis which has occupied so much of our space, is the only pathognomonic sequela of diphtheria. Other affections may, however, follow this disease, and may have more or less connexion with it or with the debility it causes. Two of our cases, a mother and daughter, suffered much from acute rheumatism; and Mr. John Bridger says, that diphtheria may be followed by pleurisy, pleuro-pneumonia, endocarditis, peritonitis, croup, abscess of the liver, gangrene of the lung, exudations on intestines and bladder, erysipelas of head and face, or of anus, umbilicus, penis, or vagina. Besides all these immediate effects of diphtheria, the general health may not be entirely restored for years. Such a case has lately been under my care, in consultation, with Dr. Atthill of Dublin, where a tendency to oft-recurring sore throat, with pellicular exudation and hemorrhage; as well as a formidable train of nervous phenomena, of a spasmodic character, at each catamenial period, seemed to arise from an attack of diphtheria six years before.

Art. XV.—*Case of Exophthalmos, caused by a Varicose Tumour of the Orbit.* By H. R. de Ricci.

Many causes may produce protrusion of the eye-ball. In early infancy it most commonly arises from malignant disease, and in such cases surgical interference offers but slight hope of success, though some rare cases are recorded in which complete extirpation of the eye-ball has succeeded in removing the entire disease, and effecting a permanent cure. Next in frequency, perhaps, may be noted pulsative aneurismal tumour; then different kinds of bony tumours, periostosis, hydatid tumours, dropsies of the capsule of Tenon, &c., &c. In the case, however, which I am going to relate the protrusion of the eye-ball was caused by a condition of parts such as I have never read of in any work of either general or special surgery, and not even alluded to in Demarquay's large work on *Tumours of the Orbit*—and as such I hope may prove of interest to my professional brethren. It was a very aggravated case of exophthalmos of the left eye, protruding fully three-quarters of an inch beyond the level of its fellow; projecting so much beyond the bridge of the nose that the eyelids could no longer be brought to close over the cornea. Although the protrusion was so great

that the optic nerve must have been enormously stretched, yet, strange to say, up to a few days before I operated, the sight continued wonderfully good, although, as might have been anticipated, the focal adjustment of the two eyes varied very considerably. I had been long watching this case, and had often examined the eye with great care, with a view to determining the exact cause of the exophthalmos. Following the most rational method of diagnosis I had eliminated or excluded, one by one, all the most unlikely causes, and thus malignant disease, aneurism, and periosteal tumour were successively set aside; still I could not bring myself to decide upon its exact nature. I thought at first that it might be dropsy of the capsule of Tenon, but the globe of the eye was unaltered in shape—it was only bulged out. Finally, having observed a considerable prominence pushing out both the upper and lower eyelid, on the outer side of the eye, I made up my mind that I had to deal with a hydatid sac, which, growing from the fundus of the orbit, protruded the eye-ball, and caused the two prominences which bulged out the upper and lower lid; and this view seemed to be confirmed by the fact that alternate pressure on the two prominences detected a feeling of fluctuation. I was wrong, however, in my diagnosis, as will be seen in the sequel, although I was correct as to the feeling of fluctuation. Finally, I determined on trying to remove the cause of the protrusion, whatever it might be, as soon as the sight would be seriously threatened, and before it should be irretrievably lost. The previous history of this case was as follows:—The patient, now aged twenty-two, is of rather strumous temperament, with very fair hair, and blue eyes; she always enjoyed good health, and never suffered the least pain or uneasiness in the affected eye. Sixteen years ago, when only six years of age, she was, by the neglect of a servant, allowed to fall from off a kitchen table on to the kitchen floor, striking the *right side* of her head against the stone flags. It must have been a severe blow, as the child was convulsed after the fall, and was some time before recovering. In a few days, however, the child was again, apparently, well, and it was only some considerable time after that strangers began to observe that the *left eye* was slightly more prominent than the right, the difference was, however, so slight that those persons which were immediately about the child did not observe it, and it was only after the lapse of three or four years that the parents perceived for themselves the protrusion of the child's eye, so slow had been its advance. Alarmed

at the discovery they had made, they consulted all the first medical and surgical authorities of that day; and when we reflect that Dublin could then boast of Cusack, Crampton, Marsh, Porter, Graves, and others, too many to enumerate, it will be readily conceded that my patient had the benefit of the best advice that Europe could offer. At this time, however, the eye protruded but little; a casual observer would not have noticed it; there was nothing to strike the observer; and the unanimous advice of all the eminent men who were consulted was to temporise, and watch what progress the exophthalmos would make. For several years the eye remained nearly stationary, its progress was so slow; but still it was progressing, and in the year 1859 Mr. Cusack was again consulted, when some local stimulating ointment, containing mercury and iodine, was directed to be rubbed in over the eye-lids, and about the orbital and temporal regions.

In 1860 the patient first came under my notice, though not under my care; and in a conversation with the late Sir Henry Marsh, who then had the management of the case, that sagacious physician remarked to me, "that eye will give trouble yet." At that time the protrusion was still slight, and by carefully viewing each side of the face in profile, I calculated it to be not more than an eighth of an inch in advance of its fellow. Things remained in this state for some time, the mercurial and iodized inunctions having apparently checked the immediate progress of the disease. This state of quiescence, however, lasted but a short time, and again the protrusion of the eye began to increase. A variety of remedies were now had recourse to; and though each in turn would seem to check the growth of the tumour for a season, still the protrusion kept steadily advancing. The patient now visited London, and there consulted most of the leading men. From what I could gather afterwards from the patient herself, their several opinions agreed in the main—the tumour, according to them, was not malignant, it was not an aneurism—most probably it was a cyst containing fluid; one surgeon offered to puncture the cyst and let the fluid out, but at the same time advised the patient to wait a little longer, especially as the sight still continued good, and there was no suffering. It was finally determined to wait a little longer before any operative interference was adopted, and to try in the meanwhile what could be effected by means of carefully applied pressure. Thus matters rested till the Autumn of 1864, when the patient came for the first time under my direct care I had

not seen her for six months, and was much shocked at the greatly increased prominence of the eye. Looking at the face in profile from the left side, the cornea came fully on a level with the bridge of the nose, while on the right side a perpendicular tangent to the cornea would fall quite three eighths of an inch within the bridge of the nose. The case having now become mine, I studied it with increased interest, and assiduously applied myself to endeavour to arrive at a correct diagnosis of it. It was evident it could not be cancer in any form—it was too obvious the patient had never felt the slightest pain in it, and was the picture of health besides; it was not an aneurism by anastomosis, for there was no pulsation to be felt either by the patient or by the observer; it was not a case of dropsy of the capsule of Tenon, for the ball of the eye was perfectly normal in shape and free in its motions. Whatever the nature of it was, the tumour was situated in the fundus of the orbit, external to the muscular apparatus of the eye, bulging it forward, but not in any way interfering with its movements. After the patient had been a couple of months under my care, I observed a considerable bulging under the outer part of the upper eye-lid, about the region of the lachrymal gland, and after a few days a corresponding prominence of the external portion of the lower lid, and synchronously with these bulgings of the lids, the prominence of the eye became considerably greater; on placing the fingers over the upper and lower prominences of the eye-lids and making alternate pressure, a decided sense of fluctuation was detected, and the same feeling was obtained by keeping the fingers on those two points and making sudden pressure backwards on the ball of the eye. The eye itself was now becoming daily more prominent; there was no positive pain complained of, but there was considerable uneasiness in it; if now it was seen in profile from the left side, it was observed to be considerably in advance of the bridge of the nose—so much so that the pupil and iris could be distinctly seen even when the face was viewed in profile from the right side; the protrusion had evidently increased as much during the last three months as it had during the previous six years; if it should continue to come forward at this rate the eye would be out on the cheek beyond the grasp of the eye-lids in a few weeks at furthest—the sight was becoming rapidly worse, and the patient was getting anxious for more determined measures. Under these circumstances I determined on an operation, and with the kind and able assistance of my friend Mr. Hutton, proceeded as follows:—The patient

having declined to inhale chloroform, I placed her in the recumbent position, and at once made an incision, about an inch and a quarter in length, dividing the lower lid parallel to the margin of the orbit; I then carefully divided the orbicularis muscle in the direction of its fibre, to an equal extent with the first incision; I then came on a quantity of fat traversed in all directions by tense shining fibrous bands, like threads, which I carefully broke down and removed. At this stage of the operation there appeared at the bottom of the wound a bright, tense, shining membrane, having all the appearance of a hydatid cyst; and, as that had been my diagnosis of the case, I was congratulating myself silently on my correctness, and had begun carefully to separate the supposed cyst from the surrounding structures, when it suddenly gave way, and a large quantity of a semi-fluid granular fat was poured out. The eye being very prominent it was easily displaced towards the bridge of the nose, and thus sufficient space was afforded for the introduction into the orbit of one finger, with which I was enabled to reconnoitre the parts; here I again found the orbit traversed in every direction by thin, but firm, tendinous bands, like threads, which I carefully divided with a small probe-pointed knife, and having evacuated a further quantity of loose adipose matter, I took the protruded eye in my left hand, and making pressure with it backwards, endeavoured to replace it in its right position; during this manœuvre, however, I dislocated the real tumour, which had been the cause of this terrible exophthalmos, for as I was endeavouring to replace the eye with my left hand, the index finger of my right hand which was still in the outer portion of the orbit came suddenly in contact with a round soft substance, and on withdrawing my finger and pressing still further back the eye, a round lobulated purple tumour, the size of a cherry, sprang up into view; its look, its feel, were unmistakable; it was undoubtedly a venous tumour; but to make sure, I punctured it, when a considerable amount of a brown watery fluid escaped, followed by active venous hemorrhage. I lost no time in passing a ligature round the tumour, and having obtained a good hold of it, I made firm traction on the ligature with my left hand, while with the index of my right I endeavoured to separate the tumour, as much as prudence would allow, from its deep connexions, with a view to tying it as near to its origin as possible; I then handed the ligature to Mr. Hutton, and while he made firm traction of the tumour I passed a second ligature round it as far back as I could reach, and cut away the tumour in front

of it. I then replaced the eye in its normal position, the patient was put to bed, and a simple pledget of lint soaked in iced water was applied for dressing.

Nothing could have exceeded the satisfaction of both doctor and patient, when, a few days after the operation, the eye was found, on examination, to be not only in its right place, but to have wonderfully recovered its sight. One month after the operation the lady was out, and well; the eye was in its place, and the sight totally restored, and all the movements of the eye-ball perfect. This happy state of things lasted, however, only a short time. Three months had scarcely passed over when the eye again began to protrude. Strong pressure and mercurial application were again tried, but to no purpose. I then advised that the same operation should be attempted over again as soon as the sight should be in danger; and if, during this second operation it should be found impossible to separate the tumour completely from its attachments I recommended a complete extirpation of the eye-ball, saving as much of the muscular structure as possible, for the purpose of fitting an artificial eye. This was terrible news for the poor patient; and her friends, naturally wishing for the best advice before consenting to the total loss of the eye, resolved on consulting Dr. Bowman, to whom I gave them a letter. He took exactly the same view of the case, and having obtained the lady's permission for the total ablation of the organ, should he find it impossible to remove the tumour without, proceeded to operate (this time under chloroform). The operation, as Dr. Bowman wrote to me, was extremely long and tedious; but he tried in vain to separate the tumour from the structures in the orbit, and, finally, was compelled not only to remove the eye-ball but all the muscles also, so thoroughly matted together were all the parts engaged. The convalescence was rather tedious, but up to this there has been no return of the disease. The tumour was examined by Dr. Bowman, who found it, as I had also done, a mass of convolutions of veins dilated into sacculi, these being traversed by tendinous threads, like the chordæ tendineæ of the heart.

ART. XVI.—*Some Remarks on the Nature and Treatment of Pulsating Thyroid Gland with Exophthalmos* ("*Graves' Disease*"). By WILLIAM MOORE, M.D., Dub.; M.R.I.A.; Fellow of the King and Queen's College of Physicians; Physician to Mercer's Hospital; Physician in Ordinary to Sir P. Dun's Hospital, and to the Institution for Diseases of Children; Lecturer on Practice of Medicine in the Ledwich School of Medicine, &c.

THE deep interest which attaches to this distressing affection, the fact of its comparatively unfrequent occurrence, and of the subject not being hackneyed, induces me to contribute the following brief observations to the pages of this valuable Journal. The affection now generally termed "Graves' Disease," viz., palpitation with visible pulsation in the carotids and thyroid body, with exophthalmos, has been treated of more or less, by writers at home and abroad. At home mainly by Graves,[a] Stokes,[b] Marsh,[c] Banks,[d] Begbie,[e] Mackenzie,[f] and Laycock;[g] whilst the foreign contributors are Withusen,[h] Græfe,[i] Desmarres,[j] Arlt,[k] Helft,[l] Bruck,[m] Basedow,[n] Trousseau, and others. Among the most remarkable phenomena of this affection are the cardiac pulsations, which exceed in frequency and violence those commonly met with in organic disease of the heart. They are so rapid and tempestuous in some cases it is difficult to define their frequency. The carotids and arteries of the upper extremities partake of this excessive vascular excitement, whilst the circulation in the lower extremities is below par. Occasionally the external jugular veins become prominent, and borrow pulsation from the adjacent vessels, whilst the thyroid gland becomes enlarged, pulsates, and conveys *fremissement* to the hand, a musical murmur being occasionally audible. Next comes the exophthalmia, the eyes (or eye, as has been once or twice observed) becoming prominent, in some cases painful on being handled, and accompanied with imperfect vision. Superadded to these objective symptoms we meet with mental depression in

[a] Clinical Medicine.
[b] Diseases of the Heart and Aorta.
[c] Dub. Journal.
[d] Dub. Hosp. Gazette, 1855.
[e] Edinburgh Med. Journal, 1863.
[f] Diseases of the Eye.
[g] Edinburgh Med. Journal.
[h] Bibliothek fur Læger.
[i] Archiv. iii.
[j] Gazette des Hôpitaux.
[k] Krankheiten des Auges.
[l] Casper's Wochenschreft, 1849.
[m] Heidelberger Medicinische Annalen.
[n] Med. Times and Gazette, 1862.

various aspects, globus, vertigo, tinnitus, and other such distressing signs.

Bruck and Basedow found in some of their patients a hysterical condition, with morbid craving for amusement and dissipation, but such has not been my experience.

With respect to the exciting cause of this malady, among the six cases which form the subject of this paper, of which five were females and one male—in three of the female cases the occasion of the disease was attributed to shocks from sudden deaths or mental emotion with subsequent depression; in another female case profuse menorrhagia; and in the fifth, loss of independence and social position seemed the origin of the affection; whilst in the instance of the male, the most rational explanation of the occurrence of the disease was excessive sexual indulgence.

Withusen (whose valuable paper on this subject has been translated by Dr. W. D. Moore, of this city, in the *Dublin Medical Press*, Vol. XLII.) tells us that the disease has been referred to causes which have had a depressing influence on mind or body, such as long-continued or very violent mental affections, from over application to study, still more frequently to weakening discharges—as hemorrhage, diarrhea, excessive lactation or leucorrhea.

The following details of a case under my observation will exemplify the symptoms and physical signs of this distressing malady:—Mrs. C—, aged thirty-four, a slight spare woman, consulted me about three years ago for general nervous and hysterical affections, palpitation and globus being chiefly complained of. On further inquiry I found she had been suffering from profuse menorrhagia for the previous eighteen months, that for the six months before my seeing her she remarked her neck becoming thick and swollen, and that at times she was afflicted with violent throbbing in her head. These symptoms abated from time to time, but on their recurrence they always seemed aggravated, till the eyes became staring and restless, and the catamenia, instead of being excessive, became deficient in quantity and colourless, the subjective symptoms keeping pace, more especially the complaint of suffocation, and painful throbbing along the neck and each side of the head. The heart's action at this stage of the disease was over 140 in the minute, and this excessive cardiac pulsation was visible, and could be heard along the great vessels, accompanied with a loud souffle. The thyroid gland was enlarged, the right lobe may be said to have increased a little, it was certainly larger than

the left, and distinct pulsation, with *fremissement*, could be felt all over it; the patient was also suffering from partial aphonia. The exophthalmia was most remarkable, the pupils were dilated, and the eye generally restless and fidgetty. The sclerotic coat of a muddy yellow hue, whilst the patient complained of dimness and partial loss of vision, with pain on the eye being touched or handled.

This case gives a general view of the symptoms and physical signs which this affection presents. In the other cases which I carefully observed there were some variations. For instance, in the case of a tall handsome woman, about thirty years of age, the pulsations became so frequent, irregular, and tempestuous, that it was impossible to determine their frequency with accuracy, whilst the pulsating carotids stood out as thick as ordinary sized middle fingers. The thyroid body was enlarged and pulsated, but it did not attain a great size; the right lobe, however, was larger than the left. There was no evidence of spanemia about this patient; but as the disease progressed there was manifest diminution in the circulation inferiorly, and the menstrual function, which had been irregular from the commencement, eventually became suppressed.

This case proved fatal, with all the symptoms of valvular patency, occasional delusions having occurred before death.

The *third* case was a young woman about twenty-seven years of age, florid and muscular. In this case, the exophthalmos was very remarkable, and the eyeballs painful on being touched; the right half of the thyroid gland was larger than the left, and the cardiac pulsations exceeded 150 in the minute; the catamenia were deficient, but the improvement in the patient took place, *pari passu*, with the menstrual restoration.

In the *fourth* case that of a young married woman, staring disfiguring exophthalmia, imperfect vision, and general spanemia, with thyroid enlargement and palpitation, were the prominent symptoms, all of which seemed to abate after the occurrence of pregnancy.

The *fifth* case occured in a married woman, 30 years of age, who had never borne children, and who suffered from total suppression of the menses, the exophthalmia in this case was revolting; the right half of the thyroid gland was larger than the left, and there was well nigh complete aphonia. In this case also the general improvement in the other symptoms was coeval with the restoration of the catamenia.

The last case I shall here adduce was that of a deaf mute, aged

thirty-one, who presented this affection in an aggravated form, but which yielded readily to free doses of digitalis. Of these six cases only one has proved fatal, with œdema, ascites, and all the other symptoms and signs of valvular insufficiency and general cardiac dilatation. Such a condition corresponds with the pathology of this disease as described by Sir H. Marsh and others. In Sir Henry's case both auricles, particularly the left, were dilated and hypertrophied, and the auriculo-ventricular valves of both sides exhibited thickened margins. In Professor Smith's case there was hypertrophy and dilatation of the left ventricle.[a] Dr. Banks[b] found the thyroid gland enlarged to four or five times its natural size, the right lobe larger than the left, and the body solid and lobulated, a section disclosing numerous cysts. The heart was as large as that of an ordinary sized man (the patient being a woman under the middle size); its valves were free from disease, with the exception of slight thickening of the anterior edge of the mitral valve. The lungs were congested, the liver appeared in an early stage of cirrhosis, the spleen was large and congested, the brain softer than natural, the kidneys had undergone the changes usually observed in the early stage of Bright's disease, albumen having been present in the urine during life, whilst hypertrophy of the left ventricle, without dilatation, existed; in addition a thickened, rigid, uneven condition of the semilunar valves. The right side of the heart was dilated without hypertrophy; much fat was found in the heart, and atheromatous deposit in the aorta and its branches—even in the arteries of the brain, the ophthalmic, and ciliary. The thyroid body was enlarged and hypertrophied, its vessels dilated and tortuous, and in some cases aneurismatically.

Cushions of fat have been found, in some cases, behind the eyes, which generally present the appearance of deep-seated inflammation.

In the case of a woman who died of apoplexy in the Hotel Dieu,[c] Professor Trousseau found the superior part of the sympathetic system in a state of marked congestion; the texture of the ganglia

[a] Hensinger found hypertrophy and dilatation of the left ventricle with great flaccidity of the muscular substance, whilst Prael met with the same condition of the left side of the heart, with atheromatous degeneration engaging the endocardium and aortic arch, with extensive softening of the brain. Casper Wochenschrift, 1851. Newman reports a case in which vision was lost several months before death. Deutsche Klinik, 1853.

[b] Dublin Hospital Gazette, 1855.

[c] Journal of Practical Medicine and Surgery, 1864.

had undergone alteration, a portion of their substance being replaced by cellular tissue; and in Dr. Cruise's case, the *post mortem* examination of which he made most carefully, with the assistance of Dr. Robert M'Donnell, the inferior cervical sympathetic ganglia were almost obliterated, being supplanted by cellular and adipose tissue.

These latter observations on the nervous pathology of this affection are most important; and I have no doubt when further extended to the nerves of the cord in general, and those of the cilio-spinal region in particular, increased light will be thrown on the nature of this interesting disease.

With respect to the enlargement of the thyroid body, which occurred in these cases I have detailed, it did not attain the size of ordinary goître. Some have asserted that there is no observable difference between this thyroid enlargement and that of ordinary bronchocele; but such is not my belief; in none of the above cases did the tumour attain a very great size, and after a time it became stationary, the right lobe being larger than the left, and in most instances the thyroid enlargement sensibly decreasing, *pari passu*, with the decrease in the palpitation; of course where the disease is of long standing, and the gland has become thickened and hypertrophied from a varicose state of its vessels, such a favourable condition of things is not to be expected. Still the fact of the decrease of the thyroid body keeping pace with the diminution in the cardiac pulsations goes far, in my mind, to refute M. Piorry's theory, viz., that the thyroid enlargement is the starting point from which the other symptoms result—the pressure from the increased gland causing dyspnea, cardiac embarrassment, and exophthalmia.

But the question naturally suggests itself, to what are all these formidable symptoms due and owing? and on this point there is a great diversity of opinion.

Dr. W. Begbie holds that the true pathology of the exophthalmos and enlarged thyroid body, found associated with cardiac palpitation and vascular pulsations, is due both to the blood and nervous system, but that the condition of the circulating fluid is the main agent, viz.: that an altered state of the blood, stopping short of what is generally termed anemia (but in many cases amounting to this condition) acts directly on the nerves of the blood-vessels and on the cardiac nerves; that as as a sequence their movements are seriously affected, the results being—dilatation of blood-vessels, arteries, and veins, and of the chambers of the heart itself. He

believes that for a long period the bronchocele is, or may be, vascular enlargement and dilatation, but in course of time hypertrophy and structural degeneration of the gland ensues. The exophthalmos depending upon vascular congestion and dilatation of the ophthalmic vessels with effusion of serum into the post orbital cellular tissue. Lastly, he concludes that a plan of treatment, with a view to an improvement in the condition of the blood, and simultaneously in the state of the nervous system, is successful in effecting a cure, provided radical structural changes have not taken place.

Trousseau, on the contrary, does not consider "Graves' disease" a cachexia, as chlorosis, or albuminuria, and he considers the coexistence of anemia as only consecutive to the disturbance of nutrition, albuminuria being a very rare symptom of exophthalmic bronchocele. He believes the disease to be a neurosis, somewhat analogous to hysteria, characterized by local determinations, having its origin in some modification of the vaso-motor (sympathetic) system. The palpitation, enlargement, and pulsation of the thyroid body, and the exophthalmos are direct consequences of this; and the diarrhea, the diuresis, and diaphoresis are due to congestion of the glandular apparatus—the irregularity of the menstrual function being caused by the deficiency of blood in the utero-ovarian system; and if this is restored, either by pregnancy or other causes, many of the symptoms of the disease disappear, as if the return of the uterine hyperemia caused the morbid congestions of the other organs to cease. Dr. Laycock attributes this affection to nervous agency, whilst Dr. Stokes has not found this disease associated with any form of carditis, and concludes that it is a special form of cardiac neurosis which may eventuate in organic disease. Whether the nervous excitement is propagated to the arteries in the neck is a question he has often proposed to himself, for there is something in their action which he considers cannot be altogether explained by the force of the heart. The double pulsation of the arteries of the neck, and those alone, he considers another evidence of local vascular excitement. Both Henoch and Stokes agree that this condition is not attended with fever, nor with physical signs or general symptoms of cardiac inflammation.

Now, although many of the most prominent symptoms of this affection, as palpitation, menstrual suppression, and mental anxiety are compatible with anemia, still I am not prepared to admit such to be the exciting cause of this disease. In four of the cases I have

adduced the appearance of the patients was not spanemic; on the contrary, three of them might be called florid and well developed, and when ferrugineous preparations were exhibited they proved ineffectual.

In this view of the question I am not singular; for whilst Withusen admits that in a great proportion of cases there was well marked anemia, with suppression of the menses, and cardiac symptoms such as would suggest the inference that this morbid condition stands in direct relation to the phenomena of Graves' disease; still, he goes on to say—if this blood disease had always evinced itself in a greater or less degree we should have progressed in our knowledge of this affection; but such is by no means the case, as numerous instances could be shown where not a trace of anemia was present; on the contrary, the patients were blooming, active, and plethoric, and where the remedies usually employed in anemia were found absolutely useless. Nor does Henoch regard anemia as an indispensable element in the development of the disease.

For my own part I consider the origin of this affection to be essentially nervous, in which the vaso-motor system plays the most conspicuous part. When we consider that the motor fibrils of the heart are derived from the sympathetic as well as from the spinal nerves; and as Professor Moleschott has shown that the heart is animated by four very excitable nerves—two vagi and two sympathetic, having a peculiar consensus, so that the state of irritation or over-excitement which is produced in one of the nerves is transmitted to the other three; again, branches from the inferior cervical sympathetic supply the thyroid body and larynx; such being the nervous distribution we may easily reconcile palpitation, pulsation of the carotids and thyroid body, with any vaso-motor irritation along this important region. Then comes the question of exophthalmia, dilated and restless pupils, &c. It is now an admitted fact that there are two antagonistic set of fibres in the iris—the circular or contracting fibres surrounding the pupil being influenced by the third cranial nerve, whilst the dilating fibres of the pupil are influenced by the sympathetic.[a] Drs. Budge and Waller, however, have shown that the fibres going to dilate the pupil originate from the spinal cord, from the region termed the "cilio-spinal," which extends from the sixth cervical to the fourth dorsal; and Brown-Séquard gives even a more extensive origin to

[a] Vierordt's Archiv. Fur Physiol. Heilkunde, 1852.

these; and with respect to the vaso-motor influence of these nerves, he has discovered that it is derived chiefly from the spinal cord, by the last cervical and two highest dorsal nerves. Schiff[a] goes still further, maintaining that the dilating fibres of the iris originate from the highest cervical nerves, even from the medulla oblongata. Under any circumstances any excitation employed along this cervico-dorsal region will cause increased vaso-motor action—hence exophthalmos and dilatation of the pupil. But it may be urged might not this dilatation of the pupils be attributable to some deficiency in the nervous action of the third pair, which would lessen the normal counteracting contractile action of the iris, and hence dilatation. This, I think, can readily be met by the fact that there is no evidence of disease of the brain or symptoms of compression. In short the conclusion most satisfactorily arrived at in my mind is, that the cardiac pulsations, pulsating thyroid gland, and carotids, with exophthalmos, dilated and restless pupils, are due to the increased vaso-motor or sympathetic action. Further, the experiments of Schiff, Bernard, and others go to prove that the disease of the sympathetic system induces in the organs more immediately under its influence changes which eventuate in atrophy; the texture of the various organs, from impaired nutrition, being replaced by adipose and cellular tissue. Such being the condition these cases usually present. Again, when we turn to the condition of the lower extremities, we find this abnormal vascular excitement superiorly starving the lower extremities of their due supply of blood, and hence the menstrual irregularities which ensue; the restoration of this function to as nearly a healthy standard as possible being a sure indication of general amendment. Withusen, however, mentions one case in which menstruation was checked for two Summers; on the first occasion it was absent for five months without any apparent change in the patient's state, while on the last occasion the visible improvement in the case coincided with the arrest of the function. Such an instance has not come under my observation, but in one of my cases pregnancy seemed to exert a favourable influence. With respect to the prognosis of this disease, the more I see of it the more hopefully I am inclined to regard it. That the affection has proved fatal more rapidly in men than in woman is generally admitted; but this I cannot endorse from my own experience, as all the cases I have

[a] Untersuchung z Physiologie des Nervensystems.

seen occurred in females, with one exception, and as yet, as far as I can learn, only one of these cases has proved fatal. In some of the others perfect recovery seems to have taken place, whilst in one case, which I have frequent opportunities of observing, the cardiac distress, carotid and thyroid pulsations have ceased, but the gland still remains enlarged, with partial exophthalmos.

The character of the affection, without doubt, is very prone to relapses, which sooner or later must entail organic changes incompatible with length of life; still with common care, and due prophylactic means being adopted, these relapses may, to a great extent, be anticipated. Among the most important of these means I should consider the distraction of the patient's attention as far as possible from what may have proved, in his or her case, the special exciting cause, for which change of scene and society will be found indispensable. As regards the special treatment of the disease, bleeding is inadmissible; but Withusen has found the application of a leech or leeches to the external cavities of the eye useful where there was much pain and tension associated with the exophthalmos. Of the therapeutical remedies I have found the tincture of digitalis, in doses of from fifteen to twenty-five drops—three or four times a-day, most efficacious—combining it with iron where I had reason to believe spanemia existed. The extract of digitalis may also be applied locally over the precordial region. Bromide of potassium I look upon as a valuable agent in these cases, but I should give it in much larger doses than those usually directed in books—say from fifteen grains to half a drachm, three or four times daily; its special therapeutical properties I am not prepared to define, but it seems to me to exert a sedative and equalizing effect on the vaso-motor system generally, more especially in restoring the uterine functions to their normal condition. The use of iodides, both internally and externally, have proved equally inefficacious in my hands. Yet Professor Trousseau inclines to the belief that iodine, internally and externally, combined with hydropathy, will, perhaps, be found the most useful resource of the therapeutist in this singular disease. Iron, *per se*, has also disappointed me. I think in these cases it would be well to keep up counter-irritation along the cilio-spinal region either by means of small blisters or liniments, such as the compound camphor or soap liniments, with belladonna or chloroform.

Art. XVII.—*Two Cases of Onychomycosis, with Remarks.* By John M. Purser, M.B., T.C.D.; L.R.C.S.I.; Demonstrator of Anatomy in the Carmichael School of Medicine.

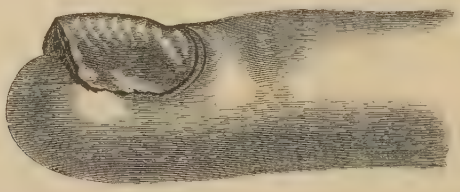
Among the various "new diseases" brought to light of late years, by our improved means of diagnosis, not the least remarkable are those characterized by the presence, whether as cause or effect, of vegetable growths on the skin and mucous membranes; but, while parasitic disease, as it affects the general integument, and more particularly those parts which are covered with hair, is now well understood, there is reason to suppose that very frequently fungi luxuriate beneath the nails without their presence being suspected, and that much of the obstinacy of diseases of the nails is due to this fact. Instances, indeed, are not wanting where diseased nails accompanied disease of other parts, and the existence of a fungus was suspected or proved; but, with the exception of those published by Meissner and Virchow, there are few cases on record where parasitic disease of the nails existed alone. It is for this reason that I have been induced to publish the two following cases which have recently occurred to me, although, except from a diagnostic point of view, they present but little interest.

A young lady, in the habitual enjoyment of good health, consulted me for a slight indisposition, and, at the same time, showed me her left thumb, the nail of which presented the following appearances:—It was of a dirty brownish-yellow colour, streaked with lines of a darker brown, greatly thickened, and at its free extremity separated from its bed by a mass of soft nail substance which could be easily picked out. The entire nail was somewhat roof-shaped, a prominent ridge running along its centre, from which it sloped down on each side towards its attached edge. Its sides were concave from above downwards; its surface was very rough, and marked by deep transverse grooves; the longitudinal striæ also were strongly marked; it was very hard, more brittle than natural, and inclined to split longitudinally and in flakes. Near the root was a small portion of nail of a pink colour, but rough and thickened; there was no trace of lunula; a small abscess existed at the root, and the skin in the neighbourhood was slightly red and swollen. The annexed woodcut (Fig. 1), from a drawing by Mr. Connolly, gives a tolerably good representation of the nail.

The history of the case was briefly as follows:—About three

years ago the patient suffered from a cutaneous affection of uncertain

Fig. 1.



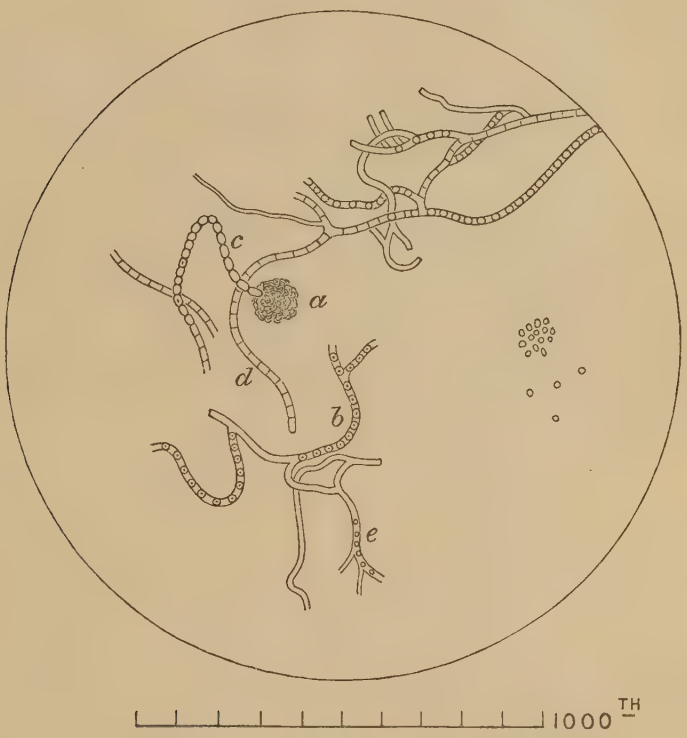
nature which was confined to the dorsal surface of the left thumb; the skin became red, and little blisters formed. She consulted a surgeon, and, under treatment, the part recovered itself in a few days. Shortly after this she perceived the nail, at its upper part, becoming discoloured and thickened. The discolouration and thickening extended with the growth of the nail from above downwards, and have been increasing ever since. With the exception of the deformity caused by it the patient has suffered no inconvenience from her disease till lately, when she became subject to small collections of matter, which form under the nail near its root, and either discharge themselves by the edge of the nail or are absorbed, leaving small yellow spots to mark their former site. She has undergone great variety of treatment, including repeated blistering of the skin around the nail, but without benefit. The other nails are all healthy, and, with the exception of that already referred to, the patient has never suffered from any skin affection.

A portion of the nail and some of the loose substance lying under it were removed, and submitted to microscopic examination. The superficial horny part of the nail, with the exception of its thickness, presented nothing very remarkable. Some of the cells, however, were opaque and granular, and others were of a brownish colour; but in the deeper layers of the nail the elements of a fungus growth were found in great abundance.

These were:—I.—*Spores*, circular or oval, either scattered, collected in groups, or forming moniliform chains. In some of them a central nucleus-like spot was apparent. II.—*Tubular filaments*, tortuous, and branching; these were for the most part jointed at intervals (*d*), and many of them contained small shining bodies (*e*). III.—*Larger, less branched, filaments*, of brownish colour, and containing spores at regular and close intervals (*b*); the walls of these filaments were sometimes indistinct, the spores being apparently attached to each other, end to end, forming a moniliform chain (*c*), which was often seen to terminate in a dense cluster of minute

spores, or in a mass of granular matter (*a*). IV.—*Granular matter.*

Fig. 2.



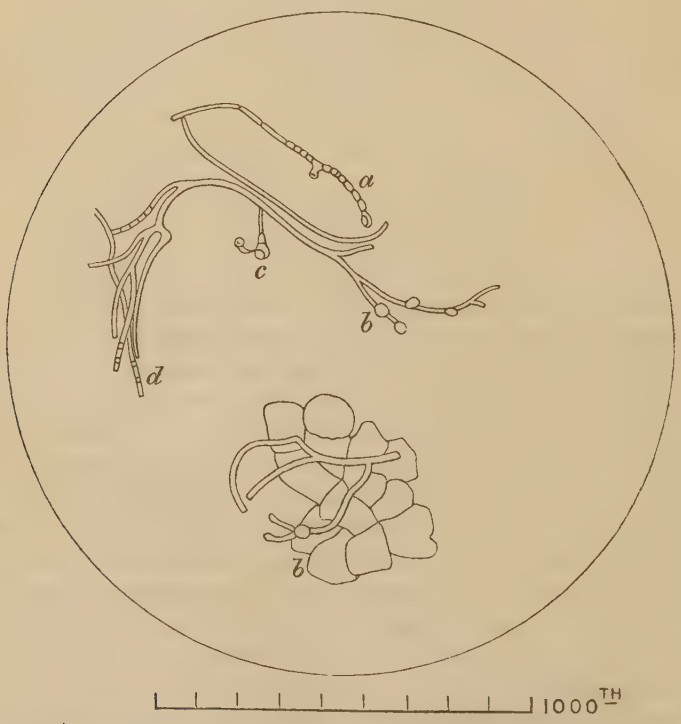
All these were mixed up with tolerably healthy nail plates, and were rendered very clear by caustic soda or potash.

In the second case the nail disease was discovered by accident. The patient was a middle-aged man, who in his younger days had suffered severely from both gout and syphilis, but who for many years had been free from both disorders. At the time he came under my observation he was labouring under advanced Bright's disease, the urine being highly albuminous, and loaded with fatty casts and degenerated renal epithelium. All the nails of his fingers were remarkably curved, presenting the appearance so frequently seen in chronic pulmonary disease; otherwise they presented nothing abnormal, with the exception of the nail of the right index finger. This was of a brownish yellow colour, with darker spots and streaks, without polish, and having the longitudinal striæ strongly marked. It was not so much thickened as in the first case, nor was it so

much separated from its bed—the loose growth of cells and fungus beneath it being less abundant. It was very friable, and inclined to split both longitudinally and transversely. In this nail, also, there was no trace of lunula, but a small part of a pinkish-yellow colour existed at its attached end. The extent of this pinkness varied at different times. With the exception of a secondary syphilitic eruption, this man had never had any skin affection, nor did he remember ever to have received any injury to which the nail disease could be attributed. The discolouration commenced at the root and grew downwards. The alteration dates back about five years, and has never given him any inconvenience. The nails of the great toe and of the second toe of the right foot presented appearances somewhat similar to those of the finger. All the other toe nails were healthy.

The microscopic appearances (Fig. 3.) in this differed slightly from those seen in the former case.

Fig. 3.



I. *The spores* were for the most part oval, and very minute; they

were either scattered over the field or formed groups; the latter arrangement, however, was less common than in the other case. In some instances a spore appeared to be germinating, a small projection extending from one extremity; in others a further stage of this germinating process was observed, two spores cohering end to end, resembling the appearances seen in the growth of torula; and in others moniliform chains were formed, one of which terminated in an enlarged oval cell, containing a shining nucleus-like body (*a*). The termination of these chains in clusters of spores was not observed in this case. II.—*Tubular filaments*, variously ramified and branching, sometimes jointed, but in many instances presenting no articulation, either empty or containing at varying intervals minute shining bodies (*d*). In some cases the course of a tube was interrupted by a round celloid body, from the opposite sides of which passed off its ramifications (*b*). In one specimen an appearance somewhat resembling that seen in puccinia was noticed, a tube terminating in a pear-shaped enlargement divided into two segments, of which the distal enclosed an oval body (*c*). III.—*Granular matter.*—In considering any case of so-called epiphytic disease the question suggests itself, whether the bodies found in the diseased spots are really vegetable growths or the results of perverted development in the cells of the part. Those who hold the latter view are now decidedly in the minority, but they number among them Mr. Erasmus Wilson, whose opinion on all matters connected with diseases of the skin is of the greatest weight. This writer believes that "favous matter, and the mucedinales of the phytodermata, are organic matter arrested in development at the lowest degree of life, the function of reproduction; the sporules are growing organic substance, aborted epidermic granules; the filamentary portion fully formed organic substance, beyond which there is no further growth, the highest and perfected form of development."[a] But the reasons given by Professor Bennett,[b] for considering these structures to be really vegetable organisms, distinct from the body on which they grow, supported as they are by the opinions not only of pathologists, but of professed botanists, appear quite unanswerable, and we have little doubt that in a short time this will be the only opinion held. But granting the truly parasitic nature of these growths, a more

[a] British and Foreign Medico-Chirurgical Review, January, 1864, p, 204. In this paper, besides the view of Mr. Wilson, will be found an admirable *résumé* of the opinions of M. Bazin, the great champion of the opposite school.

[b] Principles and Practice of Medicine, 2nd Edit., p. 802.

difficult question arises, namely, are they cause or effect of the disease which they accompany; are they capable of germinating on a perfectly healthy body, or do they grow because the part already diseased presents to them a suitable soil. The generally received opinion is, that all persons are not alike prone to epiphytic disease, but that certain conditions, as youth, dirtiness, weakness, and above all the existence of non-specific eruptions, are necessary in order that the fungous germs falling on the skin may come to perfection. This is well shown in an experiment of Bernard:—"When frogs have been kept long in captivity, their health declines, and ulcerations arise around the mouth and nose; the nervous system being in this case considerably depressed, the animal is of course found to resist much longer the action of strychnia and similar poisons, while parasitical affections spread with fearful rapidity. Frogs are subject to the growth of parasitical fungi, which after a certain lapse of time, occasion the animals death. Now, if a healthy frog be placed in a jar containing others affected with the above-mentioned disease, the new comer sets contagion at defiance; while if another frog affected with ulcerations in the vicinity of the natural orifices is introduced into the jar the parasitical vegetation covers it at once."[a] The parasite, however, once having taken root, becomes the principal cause of the local disease which it serves to keep up and aggravate, and its destruction must be undertaken at an early stage of the treatment, while at the same time an endeavour is made by general means to render the soil no longer fit for its growth.

We have lately been assured, with some vehemence, by Dr. Cobbold that nothing can be more contrary to the teachings of science than to suppose that an enfeebled state of body is advantageous to the invasion of parasites.[b] What Dr. Cobbold says of animal parasites, if it be true, may be extended to those of vegetable nature. It is, however, an opinion not likely to find much favour with practical physicians, who look on parasitic diseases more from a clinical than from a natural historical point of view, and more from the side of the patient than from that of the parasite. Indeed, if this were so, there are few of us whose intestines would not harbour tæniæ, and in whose hair follicles the achorion would not flourish, for no one has shown more ably than Dr. Cobbold himself the facility with which parasitic germs find access to the human body.

[a] Brit. and For. Medico-chiurgical Review, April, 1864, p. 386.
[b] Lancet, Vol. i., 1865, p. 326.

In both cases, recorded above, there is, I think, reason to believe that the fungus growth was secondary to disease of a non-specific kind. This is shown by the alteration in the nail having commenced at the root and extended downwards. In the first case it is possible that the previous cutaneous disease may have exerted a morbid influence on the secreting structures at the root of the nail; and in the second case the original disease may have been of syphilitic origin, or have been caused by injury, as appears to have been the case in an example of nail fungus recorded by Meissner.[a]

The doctrine of spontaneous generation meets with but little support at present, and deserves even less than it receives, so that the origin of a parasite must always be sought outside the patient on whom it lives. With regard to my first patient I learned that about the time of the commencement of her disease a dog, to which she was much attached, was suffering from a skin affection characterized by falling off of the hair in circular patches, and doubtless parasitic; and though the patient herself is convinced to the contrary, yet it is the opinion of some of the members of her family that she contracted the disease from the dog; of course, any proof of this theory is impossible, but as the patient, from her position in life, was unlikely to come in contact with persons affected by any of the usual forms of epiphytic disease, and as the transmission of parasitic germs from men to animals, and *vice versâ*,[b] has been shown to be by no means unusual, it seems that this view of the origin of the disease is far from improbable. In the second case nothing could be learned by questioning the patient; but the fact of his having worked for many years in a brewery is worthy of note, for Dr. Lowe has found epiphytic disease with great frequency among brewers, and attributes it to contact with the growing yeast. I may mention, however, that with unusual opportunities for observing the diseases of brewery labourers I have been unable to confirm the observations of Dr. Lowe. Skin affections, indeed, are common enough among them, mostly of an eczematous type, and assuming, almost invariably, the form described by Bazin as *arthritic*,[c] characterized by want of symmetry, tendency to remain localzied, scantiness of discharge, and, in many cases by intense itching, their true

[a] Küchenmeister—Manual of Parasites (Sydenham Society), Vol. ii., p. 228.

[b] *Von Bärensprung.*—Brit. and For. Medico-Chirurgical Review, July, 1857, p. 263. *Bazin.*—Leçons sur les Affections Cutanées Parasitaires. Deuxième edition, p. 126. *Frazer.*—Dublin Quarterly Journal, Vol. xxxix., p. 294.

[c] Leçons sur les Affections Cutanées de Nature Arthritique et Dartreuse, p. 183.

nature being further elucidated by the co-existence or alternation with them of unmistakable gouty or rheumatic symptoms; thus presenting a marked contrast to the same affections as they occur in the children of these men, in whom they generally present the *scrofulous* character marked by little or no itching, profuse discharge tending to become purulent, and enlargement of the lymphatic glands connected with the diseased part. However, as we have already seen, when considering the microscopic appearances of the fungus, in this case, some of the appearances of torula were present; and whether we agree with Virchow in classifying the nail fungus with aspergillus, or, with Küchenmeister, refer it to achorion or oïdium; its relation with the yeast plant is not very distant, for Dr. Fox[a] has traced the transitions from torula to aspergillus, and has shown that torula in its growth may produce the fructification of oïdium, while Mr. Hogg believes that torula and achorion are identical. The peculiar appearances seen at *b* (Fig. 3) resemble those sometimes seen in the germination of achorion, while at *a* the similarity to oïdium is marked.[b] In the first case the filaments crowned, as it were, by clusters of spores bore some resemblance to aspergillus; but, on the whole, the appearances were rather those of achorion or oïdium. The classification of fungi, at all times a difficult and uncertain study, has become of peculiarly little interest now, since from the investigations of Hebra, Lowe, Fox, and others, we have good reason to believe that the apparently different fungi, formerly classed as so many distinct species, are, in reality, but different modifications of the same plant, the diversity in appearance being due to differences in seat, stage of growth, and external influences.

With regard to treatment I have but little to say. In neither instance was I originally consulted about the nail disease, and the state of health of the man, the subject of the second case would render any interference unjustifiable. Quite recently I have been requested by the lady, whose case was first recorded, to do something to remedy the deformity of her thumb, which annoys her very much. Believing, as I do, that in all cases of epiphytic disease the destruction of the fungus should be the first step in the treatment, I cut and scraped away as much of the thickness of the nail as I could without giving pain, and to the remainder I applied

[a] Skin Diseases of Parasitic Origin, p. 151–164.

[b] See Robin—Histoire Naturelle des Végétaux Parasites, Pl. i., Fig. 5 K, and Pl. ii., Fig. 13.

freely, as a parasiticide, a weak solution of corrosive sublimate. What the result will be it is impossible as yet to say, but the probability is that, though the parasite be destroyed, the nail will require a very considerable time to recover itself, for the bed of the nail is nearly as much deformed as the nail itself, being raised in the centre and depressed at the sides; many of its papillæ also are immensely elongated, so that in scraping away the nail several bleeding points were seen surrounded on all sides by a considerable depth of nail substance.

Art. XVIII.—*On Diseases of the Supra-Renal Capsules or Morbus Addisonii.* By John Hughes, M.D.; Physician to the Mater Misericordiæ Hospital. Read at a Meeting of the Medical Society of the College of Physicians, March, 1865.

The disease known as supra-renal melasma is a discovery of recent origin, and one which we owe to the late Dr. Addison. He it was who first traced the connexion between disease of the supra-renal bodies and a most remarkable series of phenomena which existed during life; and whatever scepticism may have existed at one time respecting his views, it would be absurd any longer to doubt their correctness; day after day cases have been recorded by competent observers, and facts have accumulated in support of his original idea, so that there is no problem in medicine better supported or more clearly proved than that which he propounded. Dr. Addison says:—

"The leading characteristic features of the morbid state to which I would direct attention are—anemia, general languor and debility, remarkable feebleness of the heart's action, irritability of the stomach, and a peculiar change of colour in the skin, occurring in connexion with a diseased condition of the supra-renal capsules.

"As has been observed, in other forms of anemic disease, this singular disorder usually commences in such a manner that the individual has considerable difficulty in assigning the number of weeks or even months which have elapsed since he first experienced indications of failing health and strength. . . . . The patient, in most of the cases I have seen, has been observed gradually to

fall off in general health. He becomes languid and weak, indisposed to either mental or bodily exertion; the appetite is impaired or entirely lost; the whites of the eyes become pearly; the pulse small and feeble, or perhaps somewhat large, but excessively soft and compressible; the body wastes without, however, presenting the dry and shrivelled skin and extreme emaciation usually attendant on protracted malignant disease. Slight pain or uneasiness is from time to time referred to the region of the stomach; and there is occasionally actual vomiting; and it is by no means uncommon for the patient to manifest indications of disturbed cerebral circulation.

"Notwithstanding these unequivocal signs of feeble circulation, anemia, and general prostration, neither the most diligent inquiry nor the most careful physical examination tends to throw the slightest gleam of light upon the precise nature of the patient's malady; nor do we succeed in fixing upon any special lesion as the cause of this gradual and extraordinary constitutional change. We may indeed suspect some malignant or strumous disease. We may be led to inquire into the condition of the so-called blood-making organs, but we discover no proof of organic change anywhere.

"No enlargement of spleen, thyroid, thymus, or lymphatic glands; no evidence of renal disease, of purpura, of previous exhausting disease, or ague, or any long-continued exposure to miasmatic influences. But, with a more or less manifestation of the symptoms already enunciated, we discover a most remarkable and, as far as I know, characteristic discolouration taking place in the skin, sufficiently marked, indeed, as generally to have attracted the attention of the patient himself, or of the patient's friends.

"This discolouration pervades the whole surface of the body; but is commonly most strongly manifested on the face, neck, superior extremities, penis, and scrotum, and in the flexures of the axillæ, and around the navel.

"It may be said to present a dingy or smoky appearance, or various tints or shades of deep amber or chestnut brown; and, in one instance, the skin was so universally and so deeply darkened that, but for the features, the patient might have been taken for a Mulatto."

This description, so clear and graphic, admirably depicts the appearance of the patient and the symptoms of the disease; and, in all the cases observed since it was written, there is a singular uniformity and confirmation of its accuracy.

Drawn on Stone by Henry W. M.ᶜ Connell, from a Photograph by Werner, 15, Leinster Sᵗ Dublin

Dr. Wilkes, indeed, who has written an admirable essay on this disease, and who was in the habit of examining all of Addison's cases, fully endorses his original opinions.[a]

He says, that Addison especially founded his diagnosis upon the constitutional symptoms as already detailed, coupled with the discolouration of the skin. This latter appearance, however, is not a necessary accompaniment of the disease, and probably depends upon its chronicity. Where it does occur, however, the whole surface of the body is uniformly implicated, and those parts most exposed are first and most affected—as the face and hands; also those parts where a blister or an eruption may have excoriated the surface.

There are other symptoms given in detail which it would occupy much space to set down here, but for which I would refer the reader to Dr. Wilkes' complete essay. I will only add—that the history, symptoms, and *post mortem* appearances of the case I am enabled to record singularly confirm the views of Dr. Addison, and closely resemble the features of some of his best marked cases; one of its most striking phenomena also had the advantage of being perpetuated by means of the photograph, and the assistance of a first rate artist who coloured it from life. The only instance of the kind, I believe, on record.

Case.—I admitted into the Mater Misericordiæ Hospital on the 20th of February 1865, Pat. Garry, a native and resident of the county Kildare. He was a married man, had three children, was aged forty-five, by occupation a herdsman. I first saw him at my own house where he was brought by his master, who took the kindest interest in him. I asked him what ailed him, and he said he could not tell what came over him, only that he felt the greatest weakness; could not use any food, and had pains in his arms, in his back, and extending round his waist; his knees also were stiff and weak, so that when he knelt he could scarcely rise again—yet he was thankful there was no sickness upon him, only he was weak as a child, and not able to do anything. Together with those symptoms he presented the most remarkable discolouration of the skin, so peculiar, so striking, that I had him photographed on the instant, and so identical with that described by Addison that I, without hesitation, ventured on the diagnosis of supra-renal disease,

[a] Guy's Hospital Reports, Vol. viii.

and wrote to that effect to his master, stating also that I expected an unfavorable result. I received from him this reply:—

"MAYNOOTH, *March 3rd*, '65.

"Since the receipt of your very kind letter of the 25th I have been absent; this will, I hope, sufficiently explain my silence. Allow me to thank you for the great care and attention you showed towards poor Garry. *From your letter I anticipated the worst consequences.*"

I state this merely to show how similar in symptoms and appearance those cases are, and how easily they are recognized. The most striking phenomenon at first is the colour of the skin; but the muscular debility, the breathlessness on exertion, and the loss of appetite, all without any tangible cause, are no less remarkable. Being greatly interested in the case I used every means in my power to obtain the best history of it I could from himself, his wife, his master, and his doctor in the country. It appeared that he never suffered from any disease or accident which confined him to his bed or to the house, but for the last eight or ten years he complained of a bad stomach: its contents were frequently unduly acid, and he had occasional pyrosis, but he never vomited any blood or coloured fluid, and when the attack was over he felt no inconvenience. He was always temperate and regular in his conduct; he lived very comfortably for one in his station of life; was well clothed, well fed, and his diet was sufficiently varied, being accustomed to use fresh animal food two or three times in each week, and his occupation did not expose him to any influences detrimental to health; in fact, the most searching inquiries failed to find any sufficient cause for the gastric disturbance. His family history afforded no evidence of any hereditary taint; his father died of fever, under the age of thirty; his mother he believed to be still living in America, as also three brothers, and he has one sister at home. He had never heard of any delicacy in his family. However, the condition of his stomach troubled him for a long period; and as time wore on the attacks became more severe and more frequent. This was especially the case within the last two or three years, and for the four or five months preceding last November he could scarcely retain any food on his stomach, no matter what kind it was, and he lost condition being *one stone* short of his ordinary weight, contemporaneously with this aggravation of his gastric disturbances commencing about

last May. *The colour of his skin began to change;* every one remarked it. His friends told him he was getting jaundice; and his master told me he too observed it, but attributed the change to open air exposure. The patient himself did not mind the alteration of his colour; he only felt a gradually increasing weakness and loss of appetite. He consulted a physician of high standing in his own district, to whom I wrote, and he very kindly answered me, saying, "he was sorry he could give me little information about Pat. Garry, as he had not taken notes of his case, but he recollected that he consulted him in October last, and that he looked upon his case as one of incipient cancer of the stomach combined with disease of the liver." In December last he came to Dublin for advice, and got some powders to take and a croton oil liniment to be applied to the epigastric region. After the eruption produced by its application appeared, the vomiting ceased, but his appetite also completely ceased with it, and so also did the weakness increase. This is all I could make out of his history or antecedents bearing upon the case. On admission to the hospital he was carefully and repeatedly examined with a view of discovering some sign or symptom of organic disease to account for his extreme debility and prostration, but in vain. The lungs yeilded no morbid sound either on percussion or auscultation; the heart's action was regular, and its sounds normal, but feeble, and the pulsation not to be felt in the precordial region; the pulse, too, was excessively weak and compressible, reckoning eighty in the minute. Below the diaphragm the abdomen was rather retracted; there was slight epigastric tenderness on pressure, but no tumour to be felt; the pulsation of the abdominal aorta could be readily felt in the umbilical region, and he himself complained of its throbbing, more especially when in the recumbent position, and said it kept him awake at night; the kidneys acted well; the urine was normal in quantity and quality, it contained no albumen or other deposit, its specific gravity was over 1026, and gave an acid reaction; the bowels were regular, and the tongue clean; he complained of a pain in the abdomen, and described it as extending from the lumbar vertebræ and encircling the abdomen, very severe, but intermittent; it was neither aggravated nor relieved by food, nor was it increased or mitigated by anything he knew of; he suffered also from pains in the arms, and both in the spine as well as the arms pressure was disagreeable, if not painful. There were no cerebral symptoms, no headache, or delirium, and no paralysis, but there was a remarkable depression of spirits, coupled with a nervous anxiety about himself.

In fact, our examination was negative in its results, for there was nothing established by it to account for the great weakness which existed; this latter symptom was so extreme that our patient could not walk across an ordinary room without the greatest breathlessness and distress, and he sometimes felt giddy on suddenly getting out of bed or assuming the erect position. The discolouration of the skin, as I have already observed, was very peculiar, and led me at first to make a diagnosis. My colleague, Dr. Hayden, also recognized the resemblance between this patient's symptoms and those which presented in a case he has detailed in his essay on "Supra Renal Melasma," published in number LXXVII. of the *Quarterly Journal*, and the pathological changes in which he exhibited at a meeting of the Pathological Society on the 10th of December last. My patient's complexion had been always fair and clear, and the hair brown; now the face, neck, and hands were of a smoky-brown or bronze colour, while the sclerotic was pearly white and the finger nails were also whitish, but the pigmentation was not limited to those parts; it was well marked in the axillæ; around the nipple; in the epigastric region where the croton oil liniment was applied; in the inguinal regions, especially the left, where the patient himself said it commenced—on the scrotum and over the knees; there were also in parts of the axillæ and on the arms a few scattered spots like those of purpura, but much darker, almost black.[a] The skin, together with being universally discoloured, was dry (the patient said he never did perspire), but not shrivelled; there was a well-marked livid bluish line along the free margin of the gums, very like that produced by the poison of lead.

Dr. Hayden kindly assisted me in making a microscopic examination of the blood; and although it contained white corpuscles, yet they were not in any remarkable excess—from five to six in each field, while in other recorded cases they amounted to forty or fifty.

From Monday, the day of his admission into hospital, till Friday there was no marked change in my patient's symptoms; indeed, he sometimes said he felt better; he got up every day, dressed himself,

[a] The accompanying portrait is a most faithful likeness of my patient, and gives a perfect representation of the pigmentation of the skin. The photograph was made and painted from life by Mons. Werner, 15, Leinster-street, and lithographed with singular fidelity and skill by Mr. H. M'Connell. Our patient, as may be seen from the likeness, was not a little puzzled at his novel position; and, being somewhat reluctant to submit to the photographic process, we were compelled to have him taken without much exposure of the surface; but some of the parts best marked are uncovered.

and took more nourishment than when at home. His wife came from the country to visit him on Thursday, and she thought him improved, and found him more cheerful than usual. He took six ounces of wine daily and some aromatic iron mixture. On Friday night, however, after getting into bed he had a rigor which lasted about half-an-hour, and was followed by what he called a most distressing heat (but no perspiration), and he continued so till two o'clock in the morning, when he fell asleep. At my visit on Saturday morning he told me what occurred to him, and said he had similar attacks of late, but this was the first since he came to hospital; he said also he took some bread and tea for his breakfast *in bed*, which he immediately threw up, and this was the first time he vomited since he came under my care, or for some weeks before. He got up, however, but was scarcely dressed when the rigor again seized him, and he was obliged to lie down. The hour of my visit on Saturday was eleven o'clock, when I carefully examined him; I found no change except some degree of febrile reaction after the rigor; his skin was hot; his pulse quick, 110, and he was thirsty; his bowels were moved early, and he passed urine; there was no pain, no tenderness, no sign of any thoracic or abdominal inflammation, and his intellect was perfectly clear; there was nothing to lead to the belief that there was immediate danger. However he began to sink that evening, and during the entire night, and at six o'clock on Sunday morning I was sent for to see him. I went to the hospital without delay, and found him lying in bed, on his back, unconscious, not able to swallow, nor capable of being roused from what might be called a quiet sleep; I could barely feel the pulse; the breathing was regular; there was no stertor, no coma, no convulsion, and his features were unchanged. He died at two o'clock.

As my patient's sojourn in the hospital was brief, and his disposition so fearful and nervous, few unconnected with the institution saw him, and those few medical friends who visited him with me were struck with the pigmentation of the skin.

The *post mortem* examination, which was made by the pupils of the hospital, in my presence, and in presence of my colleague, Dr. Hayden, twenty-four hours after death, completed the case. The morbid specimens were produced at the last meeting but one of the Pathological Society, and I will briefly repeat the observations I then made in exhibiting them:—The body was rigid, somewhat reduced, but not emaciated; the colour still remained. On laying open the the thoracic and abdominal cavities there was a deposit of yellow fat in

the latter at least half-an-inch thick; the viscera I now produce are perfectly normal; the stomach which had been so irritable and so weak of function during life, is pale, no doubt, and anemic, but without any trace of organic disease or inflammatory action; the spleen is normal in size and structure; the kidneys are perfectly healthy; the heart, which beat so feebly, is healthy in structure and its valvular apparatus perfect, nothing to remark except a more than ordinary deposition of fat upon its external surface; the lungs too, I had almost said, are healthy, for those scattered milliary tubercles on the surface just beneath the pleural membrane (but not in the substance of the lung), whatever might be their effect in process of time could not have seriously interfered with their function up to the present, neither did they reveal their existence by physical signs nor by constitutional disturbance. In vain do we search for pathological changes in the principal organs; but in examining the supra-renal bodies, here alone do we find structural alterations in the greatest degree, increase of size, and deposition of a firm opaque lardaceous-looking substance, of a yellowish white colour, something like the section of a cut parsnip. The *left* capsule is much larger than the right, as if it was in a more advanced stage of disease, but both affected by the same deposit differing only in amount; through both very large nerves run, much larger than in the normal state. Dr. Hayden has kindly obliged me by making a careful examination of this deposit under the microscope, and also of a portion of the skin which had been removed for the purpose; the following is his memorandum:—

"The cheesy-looking substance occupying the centre of the left supra-renal capsule, and deposited in the form of nodules through the right, is found, on microscopic examination, to consist of imperfect cells of different sizes, nuclei and fat molecules. There is no trace whatever of fibrous tissue, fibro-plastic material, or indeed of inflammatory products in any form—the substance is manifestly a strumous deposit. A section of the coloured skin made perpendicular to the surface with a double-edged knife, exhibits an abundant deposit of dark pigment, in the usual situation, viz., in the deepest layers of the cuticle."

The head was not examined; but as we had no cerebral symptoms during life it is not likely we should find any material structural changes after death.

It is remarkable how closely the case recorded corresponds in all essential features with those detailed by Addison in his original essay.

The anemia, the debility, the feebleness of the heart's action, the irritability of the stomach, and the peculiar change in the colour of the skin, were all present, and also what may be called the negative symptoms of the disease, namely, the absence of any other cause to account for the phenomena present.

As already stated, Dr. Addison, and Dr. Wilkes, too, attached most importance to the asthenic condition and its symptoms as indications of this disease, and they considered the pigmentation of the skin as a late one in the order of symptoms. But, however that may be, it is one of the most remarkable amongst them, and one which attracts most attention—whether it occurs early or late during the disease, requires a larger number of cases and more minute histories to decide.

Referring to my case, it would seem to have been noticed long after the other symptoms—indeed only a few months before the patient's death, and, as I have stated, it was uniformly spread over the entire body.

Speaking of the mode in which the discolouration affected the skin, Dr. Wilkes says, "without denying that the colour may sometimes occur in patches, we think we are correct in saying that all experience has hitherto shown that the discolouration has been uniform over the whole surface of the body. The exact hue is difficult to describe. But it may be said to resemble that of a Mulatto's skin, and, therefore, is of a brownish cast, having sometimes an olive-green tinge, and thus the term bronzing of the skin, has come into use, or it has often what our artists call a walnut-juice shade."

On the pathology of this most interesting disease, I have little to offer. In the two cases, Dr. Hayden's and my own, which I had the opportunity of examining, the deposit in the capsules appeared to me and others very like that which we meet with in other glands, and are in the habit of denominating "strumous;" and it will be remembered there were small granular bodies, which we are also in the habit of calling miliary tubercles, found on the surface of the lungs in my case; yet Dr. Wilkes, whom every one must admit to be the best authority on the subject, considers the deposit in the capsules to be *sui generis* neither cancer, melanosis, nor tubercle. He says it is deposited first as a translucent, softish,

homogeneous substance, subsequently it degenerates into a yellowish white matter, and afterwards softens into a so-called abscess, or dries up into a chalky mass. But, however, much pathologists may differ as to the ultimate structure of this deposit, and although physiologists have as yet failed to discover the special functions of the supra-renal bodies, we cannot resist the logic of facts, but must admit that their disorganization is accompanied by a very peculiar train of symptoms during life, and an amount of constitutional disturbance tending slowly, but surely, to a fatal result.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Lectures on the Diseases of the Stomach; with an Introduction on its Anatomy and Pathology. By WILLIAM BRINTON, M.D., F.R.S., Second Edition. London: Churchill. 1864. Pp. 368.

DR. BRINTON enjoys the reputation of having been for a great part of his medical life an unwearied workman in the field of gastric pathology. Most physicians possess a natural or acquired taste for some particular class of diseases—they would be specialists, if they could. Dr. Brinton's taste has always tended towards affections of the stomach. In the first edition of this work, published in 1858, he tells us that fifteen years before its publication his attention had been drawn to this class of diseases by the death of a near relative, and since that time he has given to them "whatever attention could be justifiably devoted to a special group of diseases, by a student and practitioner of physic in general." The fruits of this devotion to one important organ have appeared in the issue, from time to time, of several valuable essays and works, which have been received by the public with much favour. We may mention his essay on the stomach in the supplement to the *Cyclopædia of Anatomy*, which he reproduces in a revised form in the introductory chapter upon the anatomy and physiology of this viscus, which occupies the first forty pages of his present work. Again, in 1857, appeared his monograph on Ulcer of the Stomach, extending to 227 pages, our opinion of the value of which may be seen by the large amount of space which we devoted to it in our twenty-third volume. When the first edition of the present work appeared we also gave a rather extended notice of its contents in our number for November, 1859. Besides those more voluminous publications, the same subject has been handled by the author in numerous detached papers in the medical journals and Pathological Transactions. It is, therefore, amply borne out that he has made the subject one of close and continuous study; and in expecting many important results from it we shall be fully justified. The field through which he has ranged

in the acquirement and selection of his materials is a most ample and diversified one. In addition to his own opportunities as an hospital physician, he has scrutinized cases of diseased stomach in foreign hospitals, and morbid specimens of it in continental and home museums, besides gathering from the rich stores which the medical journals spread before him. To form an idea of his untiring industry we have only to look at the copious statistics which he has collected. Upon one disease of the stomach alone, namely, ulcer, he has collated from the periodicals 1,100 cases, which had never before been placed in juxta-position. It may be inferred from all this what is the peculiar bent of the author's mind—that it is inclined more to doubt, than to admit, pretentious claims—more disposed to condense than to amplify—more ready to lop off than to retain individual details as encumbering the subject too much, and drawing the reader away from some important summary or conclusive deduction. We need not, therefore, expect to find in his book any graphic portraits, or brilliant word-painting, but *en revanche*, we have broad generalizations, ingenious and probable analogies, and an enormous store of trustworthy information upon every form of gastric disease.

It is to be expected that in the copious bibliography of diseases of the stomach much obscurity and perplexity should exist. Many of our treatises on the subject seem to have been written in *the way not to see a thing*, for when the busy practitioner rushes to them for guidance when he is embarrassed by "the stomach and its difficulties," too often he is obliged to throw them up in despair. We want simple aphoristic rules for application to practical cases. But is the acknowledged difficulty to be sought for in the subject itself, or in the way in which it is treated, or in both? The latter is the more likely. Still the subject presents formidable impediments, so much so that it has become almost a matter of routine for writers upon it to begin by a caution to the reader not to expect perfection. Indeed it is amusing to see, in this class of works more particularly, a protest duly entered, that, notwithstanding the well-intentioned efforts of preceding writers to elucidate the maladies of the stomach, they continue in a state of deep occultation, upon which, however, the writer of the work of the day hopes and professes to let in some rays of light to enlighten such Stygian darkness. But, alas! his successor, too blind to see those new discoveries, repeats the stereotyped remark of their slowness of advancement. Even our author "is painfully impressed with the obscurity and uncertainty which

peculiarly attach (are attached?) to the maladies of the abdominal viscera." And yet it is from no desire to criticize in an unfriendly spirit the labours of his predecessors and collaborateurs that he follows in train. His object is not to cast any reflection upon the sedulous efforts of Budd, and Chambers, and Handfield Jones, who try to lay down definite bases of exploration and treatment; but simply to recognize the fact. Neither shall we offer any invidious comparisons between these writers and Dr. Brinton. We stretch out the hand of welcome to them all. When men of enlightened minds, such as they are, take up the same subject, it is almost impossible but that they view it in varying lights, and group even trite and well-known facts into interesting and novel combinations.

What is the cause of the difficulty which is universally allowed to beset stomach diseases? The cause is not a single one, but a plurality. We have to do with an organ possessed of the widest range of physiological and pathological combinations. As the great organ of sustentation, the stomach may be likened, to use a rather homely illustration, to a grand central junction, to which the various trains return for coaling, and, when supplied, again branch off from it towards their widely-distant and independent termini. As our author observes:—

"No matter what the organ or what the disease, it is by the stomach you will have both to assault the enemy, and to victual the beleaguered fortress of life you come to help. Indeed, the classical fable of 'The Belly and the Members' may suffice to indicate how the income and expenditure, the pleasures and pains, the health and disease of the stomach are alike vicarious and ministerial." (p. 41.)

We can never read that beautiful apologue of the revolt of the members from the belly here alluded to, and so well told by Livy, though he apologizes for its old-fashioned style ("prisco illo dicendi et horrido modo") without being struck as well by its apposite application, as by its foreshadowing the future discovery of the intermixture of the chyle with the blood. We give Livy's summing up:—

"It thence appeared that the office which the stomach had to discharge was not a slothful one, and that if it be fed itself, it also feeds the rest of the body by returning to all parts of it that blood from which we get life and strength, distributed in regular proportions

into the veins, after it has been brought into a mature condition through the digestion of the food." (*Tit. Liv.* Lib. II., cap. 32.)

Besides its prominence as the source of all support—a fact which we should never lose sight of in the treatment of disease—a further complication arises from its being the centre of sympathy, quickly taking the alarm when some disturbance arises amongst the distant members and organs. There, too, a difficulty arises from the similarity of features presented by its sympathetic disorders to those of its own independent diseases.

But a still stronger cause of the uncertainty which still hangs about these diseases is to be found in an imperfect knowledge of gastric physiology. In some of the recent works on the stomach, to which we have alluded, it has been attempted to run a course of parallel lines between its physiology and pathology. The former, no doubt, is the key by which we interpret the mystical cipher of the latter; but we should be satisfied that the key is a true one, and not a scientific picklock or a forcible wrench. There is something so fascinating about physiology that it is no wonder that men of science are sometimes led astray by it; and practical men have then to renounce as bases for treatment those boasted discoveries, those *idola theatri*, which have been deemed for a time irrefragable. Still, notwithstanding many illusive flashes, much light of a more certain and steady ray has been let in upon its dark places, and, according to Dr. Brinton, it is even now just emerging from uncertainty. Until the famous case of Alexis St. Martin, and the well devised experiments of Dr. Beaumont appeared, the opinions entertained upon the natural history of digestion were crude and conjectural. Dr. Brinton supplies us with many illustrations both of the doubtfulness and success of physiological theories. As an example of the former we may rank the hitherto unsuccessful attempt to fix the true acid of the gastric secretion. He gives a startling array of eight analytical authorities, who pronounce that it is hydrochloric acid; and by a sort of chemical neutralization he cites eight others, equally illustrious, who decide that it is the lactic. We have somewhat to say against him for passing over the name of Graves amongst this latter assemblage, whose claim has, we believe, not as yet been denied of having been the first to propose, in 1823, the lactic acid as the acid of the gastric fluid.

On the other hand, as an example of successful advance in physiological discovery, Dr. Brinton adduces the settlement of the

famous question of the self-digestion of the stomach, which, since John Hunter's time, has been, what it may be a Hibernicism to call a *bone* of contention amongst physiologists. He regards the experiments of Dr. Pavy as decisive. It is undoubtedly a singular paradox, why it is that the stomach, by a suicidal act, is not *always* digested by its own juices, when these same juices are capable of dissolving flesh as food? And then comes a second question, equally singular, and a corollary of the former, viz., why it is *occasionally* a solvent of itself? Cases of the latter occurrence, wherein the suspension of the general law of immunity takes place, have been noticed by various writers, and, of course, numerous theories have been hazarded to account for it. The first point was to collect, by a large induction, examples of the various cases in which it occurred —the *tabulæ instantiarum* of Bacon. Thus it has been found to exist after violent deaths of persons in rude health, especially shortly after a full meal; and this has been naturally attributed to the outpouring of the gastric secretion at the time. Again, it has been found to occur during several diseases, one of the chief being phthisis, and Cruveilhier and Rokitanski both cite forms of stomach solution which they suppose to be partly due to this cause. Dr. Budd argues in his work that it is wholly attributable to the gastric juice being secreted at other times than during chymification. It was in this state that Dr. Pavy, by his experiments, according to Dr. Brinton, closed the controversy about the first question:—

"He has shown that it is neither to any abstract vitality of the living stomach, nor even to the continual dilution (and therefore neutralization) of its interstitial liquids, by the salivary or other contents of the organ occupying its surface, that this immunity is to be referred; but to a protection afforded the stomach by the constant irrigation of the organ with circulating blood. His well-selected experiments prove that the mass of the organ is thus, as it were, perpetually neutralized by the alkaline blood-stream, and thus kept free from the process of solution for which a free acid is a necessary condition; and that while an arrest of the circulation permits the stomach to dissolve its own walls, this solvent effect is aided by artificial acidulation, and impeded by alkalizing, much in the degree which on such a theory might be predicated." (p. 38.)

Dr. Brinton has, in his third lecture, applied this theory to explain how the gastric juice *begins* any destruction or solution of the stomach:—

"Dr. Pavy's observations, while they remit to further researches the the task of deciding how far an undue acidity of gastric juice may inaugurate or enlarge an ulcer, have the broad substantive merit of indicating that any such extreme congestion as can retard, and (however temporarily) arrest, the flow of blood through a given area of gastric mucous membrane, may thus allow this energetic secretion to cause, what with more or less of adjacent reaction, constitutes an ulcer of the stomach" (p. 164).

This "invaluable piece of information" affords the desired clue to the formation of gastric ulcers:—

"Stagnation of gastric blood . . seems thus to be a main condition, a *causa causativa*, of gastric ulceration, which, in so far as it is the effect of a chemical act of solution brought about by healthy gastric secretion, constitutes a process very unlike that which we elsewhere connote by this term. The ulcer, in short, seems to be in its outset a lesion of the vaso-motor system—an accident, so to speak, of extreme gastric congestion."—(*Ib.*)

Besides our imperfect knowledge of the physiology of the stomach the community of symptoms in most of its diseases presents another ground for our want of precision in their detection. It has been often observed that few, if any, of the affections of this viscus possess an exclusive right and title to any one symptom, and it is well known that symptoms, apparently of the greatest severity and most dangerous import, may, and do, exist, without anything more than functional disturbance; while, on the contrary, organic affections, even compromising life, may not be revealed by any prominently-marked symptoms.

The last source of difficulty on which we shall dwell is one of the most important, but for which future discovery may yet do much, namely, the want of special aids of diagnosis:—

"The aids to diagnosis afforded by auscultation in the diseases of the thoracic viscera, and by chemistry in those of the urinary apparatus, scarcely find any parallel in the maladies of an organ which executes its work without perceptible sound or movement, and only dismisses its products from the body after a complex series of changes and admixtures." (p. 42.)

It is well to know on what we are to depend for the diagnosis of stomach diseases. The author gives a brief summary of such aids

as do exist; we are sorry that they are not more numerous. The foremost place is assigned by him to physiology:—"We shall look to physiology to explain their symptoms, to aid their progress, and to dictate their treatment." He also dwells upon the value of those physical means of examining the abdomen, analogous to percussion and auscultation in thoracic disease; among these we may reckon inspection, palpation, measurement, and percussion of the abdominal walls, and as one of the first to give to these means of information their due value, we must admit that medical science is much indebted to M. Piorry, of Paris. The author further advises the collection and comparison of the histories of large numbers of cases by which we may learn the symptoms which are most essential and constant, a mode of inquiry in which he himself has been most successful. He accounts for the extraordinary powers of diagnosis possessed by some physicians by their minute study of symptoms in contrast with the lesions found after death. This "will sometimes enable us to refine our own diagnosis to a degree which borders on temerity." Of course this must depend, in the case of individual observers, upon a combination of various causes, such as acute organs of sense, associated with the important mental faculties of compounding, abstracting, and comparing. Invaluable information may likewise be obtained from the chemical and microscopical examination of the substances expelled from the digestive canal, guarding, of course, against the many sources of error connected with them. He does not even disdain to take a hint from the occasional successes of modern quackery, while, strange to say, he omits altogether the experimental deductions which orthodox remedial agents afford, according to the maxim of Hippocrates, "Naturam morborum ostendit curatio," unless, indeed he facetiously intended to include the latter in the former category. It must be allowed that no single one of all these possesses much intrinsic weight, still we are far from depreciating their collective value.

In our review of the first edition of this work we gave a rapid analysis of the first six chapters, and it would be merely *actum agere* to recur to the subject. Our attention shall, therefore, be directed to the seventh and eighth lectures, which now appear for the first time. The first of these is upon the subject of gastric phthisis; the other is headed "Gout in the Stomach." They are written with different aims; the former is intended to inaugurate the existence of a special kind of gastric disease, which heretofore has escaped notice, being supposed to be one of the Protean forms of pulmonary

phthisis, rather than a disease *per se*. The lecture upon gout in the stomach has the contrary aim of extinguishing its pretensions to the very popular position which it holds in the published treatises upon that disease. According to Dr. Brinton, gout in the stomach is a myth, a medical bugbear, calculated to terrify impenitent *bon vivants* and timorous senators, but possessing a traditional rather than a real origin and descent. The lecture on gastric phthisis occupies only fourteen pages of the book, and gout in the stomach, is dismissed in eight, both together occupying not one-third of the space assigned to cancer, or one fourth of that given to ulcer of the stomach. Perhaps this disproportion arises from their being new topics upon which the voice of medical science has not yet pronounced. In considering these novel claims we naturally inquire what the author means by the expression gastric phthisis—and we feel rather at a loss to form a complete conception of it. Even the author himself seems to feel a degree of doubt in his mind, a kind of *arrière pensée*, that it is not quite so clear as it might be; and in our humble judgment his account of it lacks some of the distinct and incisive characters which distinguish other parts of his book. Thus he seeks to explain its nature, not so much by direct description as by its analogies:—

"Without attempting to define, scarcely even hoping to explain its exact nature, I venture to point out those analogies which seem to me to indicate the true position of the gastric malady, and especially its relation to ordinary tubercle of the lungs." (p. 347.)

Before examining these analogies, we must, however, follow the author, who, *plume a la main*, sketches at the bedside the prominent features of a typical case, as follows:—

It begins as an indigestion, the first symptom of which is pain, commencing one or two hours after eating, and at first consecutive upon the morning repast, but afterwards following all the meals. The next symptom seems to be nausea, which arises from the sickening sensation left by the pain; and this passes through its degrees till it amounts to retching, but seldom goes so far as vomiting of the food It seems at length to proceed to such a pitch of gastric irritability that pain and retching succeed almost immediately the act of taking food, and even prevent that act by the unbearable suffering accompanying deglutition. It is of great importance for the diagnosis of the case to trace the phthisical history

of the patient's relatives. This, however, is not so applicable to cases of gastric phthisis as to those of ordinary tubercle of the lungs. By taking a group of relatives of a phthisical family we may find two or one attacked with the gastric form, "while another succumbs to the characteristic intestinal form of tuberculosis." The symptom next in diagnostic value is the state of the lungs, and

> "Paradoxical as it may sound to say so, it is quite as much by the absence of some thoracic signs as by the presence of others that the results of careful auscultation indicate a given case to belong to the category of gastric phthisis." (page 344.)

He seldom has met it in concurrence with even moderate aggregations of tubercle in the lungs, still less with the more advanced stage of tubercular disintegration. Fever, as a concomitant symptom, is a valuable guide, especially if taken in connexion with the absence of thoracic lesion; it is always of higher intensity than in ulcer of the stomach, or any form of dyspepsia. Laryngeal phthisis forms its nearest resemblance; if we subduct the symptoms connected with the cough, voice, and breathing, there is a great parity of symptoms in both. The absence of hemorrhage affords a safe distinction between gastric phthisis and cancer or ulcer of the stomach. In his experience the stomach is more bloodless than congested.

In seeking for the causes of this *nexus* of symptoms he finds ample proof of their nervous origin. The increased sensibility, taken in connexion with the vomiting, points to a great disturbance of the motor functions, and implies a partial or general irritation of both sensitive and motor nerve-elements, while the gastric juice is reduced to a minimum.

Dr. Brinton looks diligently out for some analogy to explain the nature of this affection on the principle of Bacon's *instantiæ parallelæ*, and at last finds one in ordinary face-ache. He inquires into the elementary phenomena of facial neuralgia, and notes four, viz., (1) excessive pain; (2) undue sensibility; (3) increased heat, vascularity, and interstitial fluid; (4) muscular twitching and spasms; and traces at some length their correlative analogues in gastric phthisis. He finally arrives at the conclusion that this disease is *a species of neuralgia of the pneumo-gastric and sympathetic nerves.*

Dr. Brinton is very hopeful about its successful treatment, if taken in time; he suggests as the basis of treatment the remedies which appease undue irritability of the nerves of the stomach, and

the avoidance, especially, of mercury. Alkalies, and the effervescing citrates and tartrates are very useful. Iron is beneficial, after cautious preliminary preparation. This ailment yields much more readily than gastric ulcer.

We have not space to discuss his reasons for disbelieving in the entity of gout in the stomach. His mode of argument is that all the supposed cases can be sufficiently accounted for by classifying them under other heads, of which he gives four, viz.: (1) painful digestion, (2) biliary colic, (3) renal degeneration, and (4) cardiac disease.

We now part with Dr. Brinton with a feeling of deep and deserved respect. Our opinion of his philosophical work is very high. It is a repertory of most valuable information upon diseases of the stomach, worked out in no small degree by his own original ingenuity and research, and evidently the result of much and deep thought. Any one chapter of it would form a subject for a lengthened review. His book is a valuable accession to our medical literature.

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1. *Researches on the Intimate Structure of the Brain, Human and Comparative. First Series:—On the Structure of the Medulla Oblongata.* By J. L. Clarke, Esq., F.R.S.—(*Philosophical Transactions*, Part I., 1858.)

2. *Further Researches on the Grey Substance of the Spinal Cord.* By J. L. Clarke, Esq., F.R.S.—(*Philosophical Transactions*, Part I., 1859.)

3. *Microscopic Anatomy of the Lumbar Enlargement of the Spinal Cord.* By John Dean, M.D. Cambridge. 1861.

4. *The Grey Substance of the Medulla Oblongata and Trapezium.* By John Dean, M.D. Washington. 1864.

5. *Researches on the Development of the Spinal Cord in Man, Mammalia, and Birds.* By J. Lockhart Clarke, F.R.S. —(*Philosophical Transactions*, Part II. 1862.)

Although our knowledge of the minute anatomy of the central nervous system is of comparatively recent date, and although much

of it is still uncertain, yet no one who reads with attention the works whose titles head this article can deny that much has already been done, and that, at least, a sure and solid foundation has been laid on which future investigators may build with security in their endeavours to elucidate those points on which we are still in ignorance or doubt.

The earlier papers of Mr. Lockhart Clarke have already been noticed in recent numbers of this Journal, and many of his results have found their way into our text books of anatomy and physiology; in the present review we shall, therefore, devote ourselves principally to the analysis of the works of Dr. Dean, merely referring from time to time to the investigations of Clarke, whose conclusions are, in every important particular, confirmed by those of the American physiologist.

We shall first consider his work on the grey substance of the lumbar enlargement of the cord.

Although cells are to be found abundantly in every part of the cord, yet *nerve* cells are confined to the grey substance, and their presence constitutes the great histological distinction between this and the white or fibrous substance in which any cells that exist belong to the connective tissue.

In the grey substance are found nerve cells, connective tissue, and nerve fibres running in various directions. A nerve cell appears to be constituted by an enlargement of the axis cylinder, containing a granular substance and a nucleus; the existence of a cell wall is still doubtful. The cells vary much in size, shape, and number of processes, but the distinctions which Jacubowitsch has attempted to draw between motor, sensitive, and sympathetic cells, founded on these variations, is quite untenable. The author has little to add to the account given by Clarke and Stilling of the cells in the anterior cornua, but with regard to the arrangement of cells in the posterior cornua some uncertainty still prevails; the opinion of Bidder and Kupffer that all the cells in the posterior horns belong to the connective tissue is manifestly erroneous, as Clarke and the author have found nerve cells abundantly, and given drawings of them. The principal cell groups are found (1) in the fibrous band which borders the substantia gelatinosa, where their processes are connected with the posterior nerve roots; (2) at the junction of the cervix and caput cornu, where they extend out into the white substance, with the fibres of which their processes form an intricate interlacement; and (3) in the cervix, where they

represent the posterior vesicular columns, which have been wrongly supposed to be absent in the lumbar region.

That nerve cells are frequently connected with each other by their processes, can admit of no doubt; but on this subject the author urges caution, for a year's observation has convinced him that the undoubted examples of cell connexion *seen*, even in the most favourable specimens, are *exceptional* rather than constant. Cell connexion is more frequently seen in the anterior than in the posterior horns.

With regard to the connexion between the nerve-cells and the roots of the spinal nerves considerable difference of opinion exists. After giving the views of several writers on this subject the author concludes that, as regards origin, there are the three following classes of nerve-roots:—

"I.—(*a*) Anterior roots, which arise from or terminate in anterior cells; (*b*) posterior roots, which arise from or terminate in posterior cells.

"II.—Anterior and posterior roots which meet in cells in the central part of the cord.

"III. Anterior and posterior roots which are directly continuous, *i.e.*, unconnected with any cells in the cord.

"I am, however, very far from pretending to imply any supposed difference of function between these classes, for I am very strongly convinced that the *function* of cell and fibre is everywhere the same; and one of the principal objects I had in view in the above classification has been to show how closely anterior and posterior roots are connected, and how nearly they come to having a common origin." (p. 10.)

The author gives a drawing of a cell from the posterior vesicular column, which is connected by its processes with four distinct bundles belonging to the posterior roots:—

"It is highly probable that these four bundles proceed from different, if not distinct, parts of the body, so that *possibly we have here sensations from four more or less distinct parts of the body centralized in one nerve-cell.* How they are separately conveyed to the sensorium as distinct sensations I have been able to form no idea." (p. 9.)

With regard to the connexion of the cells with the longitudinal white fibres, the same difference of opinion exists as on the subject of the connexion between the cells and nerve-roots. Bidder and Schroeder Van der Kolk believing that *all* longitudinal fibres of the anterior and lateral columns arise from cells, while Stilling asserts

"that the whole white substance of the spinal cord (like the separate columns) has a double origin—peripheral and central."

The author, while believing that no part of the anatomy of the cord requires more careful investigation than the constitution and origin of the white columns, adopts the following views provisionally:—"The anterior and lateral columns, apart from the anterior roots, are only *partially* derived from the cells of the anterior and posterior cornua, *some* of the white longitudinal fibres seeming to be direct continuations of the posterior roots, after these have passed through the grey substance. The posterior white columns are composed almost exclusively of the posterior roots, a few fibres appearing to be derived from cell processes coming from the large cells, situated on the margin of the posterior cornu; what course these latter fibres take after leaving the grey substance I have been unable to determine definitely." (p. 10.)

Course of the nerve-roots.—The posterior nerve-roots are attached solely to the posterior columns, having no direct connexion with the lateral columns, as maintained by Stilling and others.

In the posterior columns the fibres appear to take four principal courses. 1. Some ascend obliquely inwards, entering the grey substance sooner or later, according to their degree of obliquity. Though it is probable that all these fibres enter the grey substance ultimately, it is not yet anatomically proved, for many are so nearly longitudinal that they cannot be followed in their entire course. 2. Some run obliquely at starting, but soon assume a directly transverse course, and in this direction pass deeply into the grey substance. They are less numerous and finer than the fibres of the first set. 3. Some descend obliquely inwards, pursuing in a downward course a direction the exact counterpart of that pursued by the first set in ascending. Though some of the latter may be supposed to reach the brain without entering the grey substance of the cord, there can be no doubt that all the descending fibres enter the vesicular columns, but the same difficulty in tracing the whole course of a fibre exists in each case. 4. Some are looped or recurrent, uniting ascending and descending fibres:—"Their course is usually as follows:—Starting from the ascending end of the bundle, the fibres penetrate the posterior column as far as the margin of the grey substance; here the bundle often divides, part of its fibres passing upwards, whilst a part penetrate the grey substance, pursuing a slightly oblique ascending course. They frequently proceed upwards for a considerable distance, finally looping round

and re-entering the white column, joining some bundle, with which they pass out, either the root immediately above their entrance, or, as is often the case, one higher up." (p. 13.)

Central course of the nerve-roots.—In longitudinal sections, the ascending, descending, and transverse fibres are seen to pass indiscriminately into transverse bundles, which traverse the substantia gelatinosa, and then curving upwards or downwards form those longitudinal bundles which are seen near the junction of the cervix and caput cornu; these the author particularly describes under the name of the "longitudinal columns of the cornu." After a short longitudinal course the fibres forming these bundles pass forwards, some to the commissures, some to the cells in the anterior cornu; some to be directly continuous with the anterior nerve-roots, and some into the antero-lateral columns of the cord. Some of the transverse bundles do not enter into the longitudinal columns of the cornu, but pass directly forwards, and are either lost to view or are seen to be directly continuous with the anterior nerve-roots. In the *anterior white columns* are found:—1. The fibres of the anterior nerve-roots, which, after pursuing an obliquely ascending course enter the grey substance. 2. Fibres forming loops; these pass out of the grey matter often in company with an anterior nerve-root; they then curve downwards, and after a variable distance again enter the grey substance. While agreeing with Clarke that some of these loops may be derived from the posterior nerve-roots, Dean believes that the greater number of them have an origin from the cells of the anterior cornu, with which they are often seen to be connected at both extremities.

In conclusion, the author sums up the chief results arrived at in a number of propositions.

The paper is illustrated by four well executed plates, containing eight figures.

We have next to consider the memoir of Dean on the grey substance of the medulla oblongata. This forms one of the publications of the Smithsonian Institution—it is illustrated by sixteen plates, containing forty-five figures, many of which are lithographic reproductions of photographs taken by the author from sections of the medulla; they are exceedingly accurate and well excuted, and the whole work bears evidence of much patience and labour.

As the grey matter passes from the cord into the medulla oblongata the posterior cornua are pushed forwards and outwards, and their outer part is broken up into a net-work by the passage

through it of numerous longitudinal and arciform fibres. The caput cornu, thus pushed forwards, approaches the surface of the antero-lateral column forming the tuberculo-cinereo of Rolando, while from the posterior aspect of the cervix cornu are developed two tufts of grey matter, which have been described by Clarke under the names of post-pyramidal and restiform nuclei. The tractus intermedio-lateralis is still apparent, but gradually diminishes as the nucleus of the spinal accessory is developed. The anterior cornua are broken up into a net-work by longitudinal fasciculi of fibres, and are traversed by the roots of the hypoglossal nerve. Above the crossing of the pyramids the raphè becomes apparent; it is the seat of a most complex decussation between fibres from nearly all parts of the *opposite* sides of the medulla, chiefly, as shown by Clarke, through the system of arciform fibres, which at the same time connect together all the parts of each *separate* half. —(Medulla Oblongata, p. 251.) As we ascend the olivary bodies appear; these are very closely connected with each other and with the nuclei of the different nerves, specially with that of the hypoglossal. This large nucleus is developed on the antero-lateral aspect of the central canal, while posterior to the canal is found the nucleus of the spinal accessory; the connexion between these two nuclei is of the closest description, and will be again referred to. In each anterior pyramid of man we find a group of cells, the great pyramidal nucleus, believed by Clarke and Dean to be a portion of the olivary body which it much resembles in the arrangement assumed by its cells; but supposed by Stilling to be the chief source from whence the fibres of the anterior pyramidal columns arise. In the lateral column also a group of cells is found, which, under the name of "antero lateral nucleus," has been particularly described by Dean, who considers it to be "a distinct group of cells intimately connected with the development of the internal arciform fibres."—(p. 7.) Ascending, as we come to the level of the calamus scriptorius, we find the spinal accessory nucleus being gradually transformed into that of the vagus. At this level the olivary bodies, the post-pyramidal and antero-lateral nuclei have reached their greatest development. Higher up the antero lateral nucleus is encroached upon by the olivary body, and between the post-pyramidal nucleus and that of the vagus is developed the auditory nucleus. This enlarging pushes forward the vagus nucleus, which gradually is transformed into the nucleus of the glosso-pharyngeal. The hypoglossal nucleus now diminishes in size, and by its upward

extension forms the fasciculus teres, from which, by a common nucleus, arise the sixth nerve and the portio dura of the seventh. The olivary bodies diminish in size, the restiform nuclei persist, and from them fibres radiate obliquely, becoming more and more horizontal as the cerebellum is approached. The posterior division of the auditory nerve is seen winding round the back of the restiform bodies. Finally, the olivary and anterior pyramidal columns give place to the complex structure of the pons Varolii. Having thus given a brief sketch of the morphological changes observed as we ascend through the medulla, we proceed to notice more particularly some of the principal points in its anatomy.

Hypoglossal nucleus and roots.—This nucleus appears just above the upper cervical nerves, in front of the central canal, and is developed in the posterior portion of the anterior cornu, being evidently a continuation of the cell columns from which the anterior nerve roots arise; indeed, it is difficult to say where the fibres of origin of the upper cervical nerves terminate and those of the hypoglossal begin. The nucleus is pyramidal in shape, and contains large multipolar cells, arranged in groups, and whose processes, radiating in every direction, establish communications between the nuclei of opposite sides, and between each nucleus and other parts on the same side, principally the spinal accessory nucleus and the olivary body. The latter communication is very intimate, and is effected both by direct fibres, and by little cell groups scattered along the raphè and hypoglossal roots. In most mammalia the hypoglossal roots pass to their nucleus on the outer side of the olivary body, but, in man the greatly increased development of the olivary body which is one of the chief characteristics of the human medulla, necessitates the passage of the nerve along the inner side of the ganglion, between it and the anterior pyramid. Arrived at its nucleus the greater number of fibres are connected with the groups of multipolar cells, but some pass backwards to the nuclei of the spinal accessory and vagus, and some turn inwards, and, decussating at the raphè, pass to the opposite hypoglossal nucleus.

Passing over an interesting chapter on the passage into the medulla of the posterior vesicular columns and tractus intermedio lateralis, we proceed to speak of *the vagus nucleus, and roots.* The nucleus is an upward extension of the nucleus of the spinal accessory, the line of demarcation being difficult of determination. In shape it is triangular, the apex being bifid, from the passage through it of longitudinal fibres, which, passing into the cord,

connect the vagal nuclei with the whole class of respiratory muscles. The cells are mostly oval or fusiform, and vary much in size, the largest cells being in the anterior part of the nucleus, near to the entrance into it of the nerve-roots. Their processes pass in various directions, and establish numerous connexions between the vagal nucleus and other parts, principally the hypoglossal, post pyramidal, restiform, and opposite vagal nuclei; also the longitudinal fibres already spoken of, the caput cornu, and the fibres of the trifacial, which Clarke has shown to descend in the grey matter of the posterior horn.

The roots of the vagus pass inwards through the caput cornu, and through the descending fibres of the trifacial, but are not *directly* continuous with these; they for the most part enter the anterior portion of the nucleus and become continuous with its cells; some pass backwards around the longitudinal bundles, and enter the posterior portion of the nucleus; some pass forwards, and either decussate at the raphè or pass into the hypoglossal nucleus, where they join the cells, and probably in some cases are *directly* continuous with fibre of the hypoglossal roots. "If such be the truth, we have in the medulla three classes of nerve fibres analogous to those I pointed out formerly as existing in the spinal cord, viz.:—1. Vagus (spinal accessory) and hypoglossal roots which arise from or terminate in cells in their respective nuclei. 2. Vagus (spinal accessory) and hypoglossal roots meeting in cells. 3. Vagus (spinal accessory) and hypoglossal roots directly continuous."—(p. 29.)

Glossopharyngeal nucleus and roots.—We have already described how the auditory nucleus is developed between the post-pyramidal and vagal nuclei. As it enlarges it pushes forwards the nucleus of the vagus, which gradually passes into the glosso-pharyngeal nucleus, there being no defined separation; the three divisions of the eighth pair of nerves may, indeed, be described as coming off from the same nucleus, the glosso-pharyngeal highest up, below this the vagus, and lowest of all the spinal accessory. The roots of the glossopharyngeal pass in through the caput cornu and pierce the descending fibres of the trifacial, but are not directly connected with them. Some of the fibres enter the nucleus, and are connected with the cells, others pass to the fasciculus teres, the upward extension of the hypoglossal nucleus, others pass into the anterior and lateral columns, and either decussate at the raphè, or pass upwards as longitudinal bundles. The decussation of the roots of the

glosso-pharyngeal nerve is difficult to trace in the human subject, but in the cat it is very distinct.

With regard to the minute structure of the olivary bodies, the author confirms in every particular the account given by Clarke. This question is of much interest, not only as being one of the most difficult points in the anatomy of the medulla, but from the probability, noticed by Dean and Clarke, that the same general plan exists wherever convoluted masses of grey substance are formed, so that the study of the minute anatomy of these bodies is likely to throw much light on the analogous structure of the cerebrum and cerebellum. With regard to the function of the olivary bodies, the author agrees with Clarke in believing them to exert a co-ordinating influence on the other ganglia of the medulla, an opinion founded on the fact of their close connexion with all these ganglia, while they are immediately connected with no nerve fibres.

In mammalia the olivary bodies are less developed than in man, and more clearly divided into superior and inferior.

In the second part of his memoir the author, after having described the morphological changes which we find to take place in the trapezium of men and mammalia, as we ascend towards the pons varolii, proceeds to consider the remaining ganglia found in this part of the nervous system.

Auditory nucleus and roots.—We have already described the position in which the auditory nucleus is developed; as it enlarges it pushes forwards the vagal nucleus, with which, and that of the hypoglossal, it becomes fused into one mass. Higher up it is pushed backwards by the fasciculus teres. In the auditory nucleus some of the largest nerve cells in the body are to be found, whose processes pass in all directions, establishing numerous connexions between the nucleus and other parts; that with the cerebellum being particularly intimate. The auditory nerve consists of anterior and posterior roots. The posterior wind round the back of the restiform bodies, and form the well known white streaks on the floor of the fourth ventricle. They contain many ganglionic cells, and are reinforced by fibres from the restiform bodies; they pass into the auditory nucleus, and are also connected with the nucleus of the facial and abducens. Many fibres decussate at the raphè. Van der Kolk supposes that the posterior division of the auditory root is unconnected with the sense of hearing, and consists of reflex fibres which are "connected by means of ganglionic cells with

the auditory nerve, and in terror, caused by an unexpected sound, reflect upon the whole muscular system, and place the body in an attitude of defence." The anterior division of the auditory root is thus described by Clarke:—"It consists of two portions—the principal portion penetrates the medulla beneath the restiform body, and, running along the outer side of the caput cornu, enters both parts of the auditory nucleus; the other portion runs backwards, along the upper border of the restiform body, which it accompanies over the superior peduncle to the inferior vermiform process of the cerebellum." Much uncertainty still prevails with regard to the ultimate destination of many of the root fibrils of the auditory nerves.

Facial nucleus and roots.—"The facial nerve enters the medulla on the inner side of the caput cornu, and runs in a curving course directly inwards and forwards to the fasciculus teres, which is an upward continuation of the column of large multipolar cells with which the roots of the hypoglossal were connected lower down." A remarkable difference exists between the upper and lower fibres of the nerve; the latter proceed to the nucleus and there terminate; while the former, which are on a higher level than the nucleus, pass to the raphè, and decussate with fibres from the opposite nerve. In this course they enclose a bundle of longitudinal fibres, supposed by Stilling to belong to the fifth nerve, and by Van der Kolk to the auditory. Dean adopts neither of these opinions, but thinks that many of the facial fibres join these longitudinal bundles, and passing downwards either decussate or enter their own nucleus. Stilling has supposed that fibres of the facial pass downwards into the columns of the cord. There is no nerve in the medulla which decussates so freely as the facial; some of its fibres must pass up as high as the corpus striatum and optic thalmus, for in ordinary hemiplegia, from disease of these ganglia, the face is almost always partially paralyzed on the side opposite to the lesion.

Abducens nucleus and root.—While all the other nerves of the medulla pass inwards towards the raphè, where they decussate more or less freely, the abducens in its course towards its nucleus bends outwards, and consequently does not decussate, at least directly. Acording to Stilling and Clarke the abducens arises from the same nucleus as the facial. Van der Kolk thinks that

[a] Dean thinks that anatomical facts are wanting to support the theory of reflex influence exercised by the auditory on the facial nerve, which has been so ingeniously set forth by Van der Kolk. Medulla oblongata (New Syd. Soc.) p. 124.

after piercing the roots of the facial it passes upwards to a nucleus of its own, which is connected by fibres with the nucleus of the opposite motor oculi. Dean traces some of the fibres of the abducens into the facial nucleus, others to the back of the auditory nucleus, and along the floor of the fourth ventricle; and thinks, on theoretic grounds, that the connexion with the opposite oculo motor nucleus is not improbable.

The upper olivary bodies consist of a group of stellate cells developed on each side of the raphè, above the lower olivary bodies, and in the situation of the antero-lateral nuclei, of which they are the upward extension. Van der Kolk, finding them most highly developed in animals whose power of expression is greatest, concludes that they are accessory nuclei for the facial, just as, acccording to him, the lower olivary bodies are for the hypoglossal nerve. Dean, while admitting the close cennexion between the facial nuclei and upper olivary bodies, thinks that as the most intimate relations of the latter are with the great system of arciform fibres we must look on them as performing the same function as the lower olivary bodies, namely—co-ordination of the different parts of the medulla and trapezium.

The memoir terminates by a description of the methods employed in the preparation of the medulla for microscopic examination, and for photographic use.

We have thus followed the author, step by step, through his essay; and if in any instance we have failed to make his meaning plain to our readers, the difficulty of condensing that which is already so condensed, and of explaining the complex structure of the medulla without the aid of diagrams or preparations, must be our excuse. We hope that any defects in our review will have the effect of making our readers refer to the original works, where we can promise them an ample reward for the time they will spend in their perusal. Like our author we have confined ourselves to a bare statement of facts, and have avoided drawing any conclusions from them. It would not be difficult to give a list of physiological and pathological phenomena capable of explanation by these facts, and we can bear personal testimony to the light which in practice they are able to throw on many obscure diseases of the nervous system.

The last work on our list is that of Mr. Lockhart Clarke on the development of the spinal cord. As our remarks have already extended to too great a length we forbear, on the present occasion, to give any detailed analysis of this valuable memoir, to which we

should be unable to do justice in the limited space at our disposal. We can, however, recommend it most heartily to the attention of our readers, who will find it marked by the same patience in research, accuracy in observation, and clearness in style that characterize all the writings of its author.

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1. *De l'Ataxie Locomotrice.* Par le Docteur Topinard. Paris: J. B. Baillère et Fils. 8vo, pp. 575.

On Motor Ataxia. By Dr. Topinard.

2. *Practical and Pathological Researches on the Various Forms of Paralysis.* By E. Meryon, M.D. London: Churchill and Sons. 8vo, pp. 215.

3. *On Paralysis, Neuralgia, &c., and their Successful Treatment by Galvanization, &c.* By Julius Althaus, M.D. Third Edition. Small 8vo. Trübner & Co. Pp. 236.

The disease which forms the subject of the first book on the list before us has been recognized but of late years; it had probably been observed by many in times gone by, but it had been absorbed in the general appellation of paralysis. To our great countryman, Dr. Robert Todd, is, however, due the merit of having first recognized it as a particular disease, and associated it with an organic change of the posterior columns of the spinal marrow.

The volume now before us forms a complete and most exhaustive monograph of "ataxie locomotrice progressive," or Duchenne's disease, as it is called by some; and no better proof of the intrinsic value of this book could be adduced than the fact of the French Academy of Medicine having awarded to it the Civrieux Prize in 1864. Commencing with the etymology of the word ataxia, Dr. Topinard defines it:—"A disorder of the functions which preside over progression, equilibrium, and other voluntary muscular acts; a disorder not caused by paralysis, nor muscular atrophy, nor by malformation of bones, &c., &c.; and totally different from trembling, chorea, and convulsions, whether general or partial, tonic or clonic." There is another form of ataxia which he cautions his readers against confusing with the real disease of Duchenne, a "muscular ataxia," the

causes of which are very different, as he says:—"The immediate causes of progressive motor ataxia are central, while its manifestations are peripheral; whereas muscular ataxia is a disease seated in the muscle itself, or in its motor nerve." A work like this, principally made up of cases carefully collected and lucidly described, and in most instances followed by highly interesting dissections, is about one of the most difficult to analyze or review satisfactorily. A great part of the book is taken up in endeavouring to point out what is, and what is not, genuine motor ataxia; for the author believes, and we agree with him, that this name has been at times very loosely applied to different forms of paralytic disease; and, after detailing a number of cases in which a condition resembling very much Duchenne's malady existed, he comes to the conclusion that, after all, the best test of this disease is the one originally pointed out by Romberg, viz., that the irregularity of motion in ataxia is only when the eyes are shut, while in other paralytic conditions it is the same whether the eyes are shut or open. Dr. Topinard defines this disease as follows:—"Progressive motor ataxia, according to the meaning generally attached to it at present, is a disorder of locomotion and equilibrium compatible with strict integrity of muscular force, and differing from tremblings, from chorea, and from convulsions." Having arrived at p. 143, he enters on the consideration of the commencement and progress of the disease, sometimes rapid, sometimes insidious—at one time reaching its acme in two years, at other times requiring twenty. Nothing could be better described than the history of the insidious approaches of this disease—the acute, flying, erratic pains, which so often and so erroneously are attributed to rheumatism—the derangement of sight, and the ophthalmoscopic appearances of the retina—the numbness, and the anesthesia. He then alludes to the appearances to be studied in cases of ataxia of the upper limbs, a disease much rarer than that which affects the lower limbs, and how to distinguish between it and general paralysis and tremor—a matter not so easy as might be thought at first sight. He then passes to the most important section, if not the most interesting portion, of the work, viz., what Dr. Topinard believes to be the most efficacious treatment. We regret to say that he holds out very small hope from medicines. We read that Duchenne's remedies, viz., iodide of potassium and electricity, have failed in his hands; and though derivations along the spine, tonics, and sometimes cupping between the shoulders, have given relief, still it is evident by his expression

that he places very little, if any, reliance in treatment, and hopes more from general hygienic measures. Alluding to nitrate of silver, as first employed by Wunderlich, and subsequently so much extolled by Charcot and Vulpian, our author acknowledges that in their hands it has proved of considerable efficacy in retarding the progress of the disease, and even in improving the condition of some patients; but still he seems to doubt its real value. Now, so far as we have had opportunities of studying this form of paralysis, we think ourselves justified in agreeing with Charcot and Vulpian in the advantages to be derived from the use of nitrate of silver, especially if administered during the early stages of the disease; and we know that Professor Banks, of this city, who has had ample opportunities, and has devoted much attention to this disease, holds the same opinion. But we must now take leave of Dr. Topinard, cordially recommending his book to those who wish thoroughly to make themselves up in "progressive motor ataxia."

Dr. Meryon's book, which we now take in hand, does not pretend to give us new views of either the physiology, the pathology, or the therapeutics of paralysis. It simply describes the different forms of this disease, with their *post mortem* appearances, together with the most approved mode of treatment in the present day. The book is divided into six chapters, the first being devoted to the structure and physiology of the nervous centres, and is illustrated with a very good plate representing a section of the spinal marrow. The cases, of which a great number are introduced as illustrations of the different forms of paralysis, have been very carefully selected from a variety of authors, both British and foreign, while the descriptions of each variety of paralysis is clear, though perhaps, in many cases, rather too concise. Progressive motor ataxia is, for instance, completely exhausted in *seven* pages. Still we must confess that the great characteristics of the disease are clearly laid down; the history of its invasion, slow progress, termination, and *post mortem* appearances graphically described. When discussing the treatment, however, he seems to ignore completely the use of nitrate of silver, which is the only remedy that in our hands has apparently been of any service.

The third book on our list is Dr. Althaus' little volume. We confess that, on reading its title-page, we became prejudiced against it. We fancied that it looked like a medical work for non-medical readers; but we changed our mind as we read it through, and we have no hesitation in recommending it, not as a work on galvanism

or electricity, but as a short compendious account of the different diseases in which electricity, in one form or another, may prove of service. In the first page Dr. Althaus describes, in a few words, the difference (so far as we know) between electricity, galvanism, and Faradaic electricity; and, having shown how much they differ in their several properties, occupies the rest of his manual with an enumeration of the cases in which electricity may be of use, together with the kind which should be employed in each case. Now, there can be little doubt that forms of electricity so different in their chemical action as galvanism and Faradaic electricity must, in all probability, be equally different in their action on the living frame; and we have little doubt that this powerful therapeutic agent has often been brought into disrepute in consequence of its having been injudiciously applied. Now, the little book before us will prove, we think, a convenient guide in selecting the form of electricity to be employed in any case which might present itself to a medical practitioner, and to prevent him from employing an interrupted current where he should have used a continuous one, or *vice versâ*.

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1. *A Manual of Materia Medica and Therapeutics, including the Preparations of the British Pharmcopœia, and Many other Approved Medicines.* By J. Forbes Royle and Frederick W. Headland. Fourth Edition. London: Churchill and Sons. 8vo., pp. 776. 1865.

2. *A Manual of Practical Therapeutics, Considered Chiefly with Reference to the Articles of the Materia Medica.* By Edward John Waring. Second Edition. London: Churchill and Sons. 8vo., pp. 956. 1865.

3. *Therapeutics and Materia Medica; a Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History.* By Alfred Stillé. Second Edition. Philadelphia: Blanchard and Lea. 1864. Two Vols., large 8vo., pp. 1595.

The works the titles of which head this article, are no new candidates for professional favour, each one and all of them having gone through the ordeal of at least one previous edition; in the case of

that by Messrs. Royle and Headland, this, indeed, being the fourth edition to which the work has reached; and yet this book in many respects presents all the features of a new, and, as it were, untried production; so extensive and radical are the changes rendered essential by the recent appearance of our long-promised, and, in many quarters, heartily-abused national Pharmacopeia; hence it is that it appears incumbent upon us to submit its pretentions to more careful examination than otherwise would seem to us to be necessary.

In the Preface it is stated that, "In this work the medicines of the British Pharmacopeia will be found arranged in natural order, the preparations described at length, and the formulæ explained." To a certain extent faith is kept with us, so far as these promises are concerned, but strict truth compels us to add that in many instances the explanations vouchsafed us of the processes are of the lamest and most meagre character. For instance, we read in the remarks upon the ferri phosphas of the Pharmacopeia, that

"The phosphate of soda (q. v.) contains 2 Equiv. of the Alkali with one of basic water. If added by itself to the solution of Sulph. Iron an iron salt of similar composition is precipitated ($2Fe\,O, H\,O, P\,O_5$). This salt is white, but becomes blue on exposure. When the Acetate of Soda is added with the Phosphate, the precipitate is said to contain another Equiv. of Protoxide of Iron. There is some doubt, however, about the constitution of the Phosphate of Iron. According to Kane, the blue phosphate formed as above is a definite compound of the Protophosphate with the Perphosphate. But Gmelin has found the native phosphate, which it strongly resembles, to have the composition ($3Fe\,O, P\,O_5+8$ Aq.)."

Now the object with which acetate of soda is introduced into this preparation is completely misunderstood by our authors; as we take it, the explanation given us in Macnamara's Neligan being the true solution of the reason why the pharmacopeial authorities introduced acetate of soda into this preparation:—

"EXPLANATION OF PROCESS.—Phosphate of soda consists of one equivalent of phosphoric acid in combination with two of soda and one of *basic* water (see p. 186). Phosphate of iron consists of three atoms of oxide of iron united with one of phosphoric acid; to furnish these three atoms of oxide of iron, three equivalents of sulphate of iron will be required; but phosphate of soda only contains enough

of base to saturate two out of the three equivalents of the resulting sulphuric acid, which would be objectionable inasmuch as the free sulphuric acid, exercising a solvent action over the phosphate of iron would be a source of loss in the process; an action not possessed by acetic acid: hence the necessity of employing the acetate of soda, one equivalent of which, with one of phosphate of soda, containing between them three equivalents of soda, saturate the three equivalents of sulphuric acid, forming three equivalents of sulphate of soda, which, with the acetic acid set free, are held in solution, whilst the three oxides of iron unite with the one phosphoric acid, forming the phosphate of iron, which is precipitated, thus, 2NaO, $HOPO_5$ + NaOA + $3FeOSO_3$ = $3\,NaOSO_3$ + A + HO + 3FeO, PO_5. The precipitate is to be washed so long as the washings yield any precipitate with chloride of barium; in other words, until freed from sulphate of soda."

Again, as an example of loose writing, we may instance the explanation given us of the pharmacopeial process for the manufacture of the zinci chloridum:—

"The H Cl is decomposed, the Cl combining with the Zinc, and H gas being evolved. Iron is apt to be present as an impurity in the Zinc, and a chloride of iron would thus be formed at the same time. By the addition of Chlorine the Iron is peroxidized and converted into perchloride. Carbonate of Zinc being now added, the Iron salt is decomposed, and Peroxide of Iron separates, some more Zn Cl being formed, and C O_2 escaping. The iron being separated by filtration, the Zinc salt is concentrated till ready to solidify on cooling, when it is cast into moulds for use as a caustic, and kept from the air on account of its strong attraction for the water of the atmosphere."

How, by the addition of chlorine, iron can become *peroxidized* is more than we can fathom; it certainly is converted from the state of proto to that of sesqui-chloride of iron, and is then, on the addition of the carbonate of zinc, peroxidized, but not until then. Our authors evidently have a just appreciation of the true nature of the case, but, in our opinion, such is not sufficient in a work that is so extensively read by our junior students; for them accuracy and precision are essential, and we think that we are doing our authors a service by drawing their attention to such omissions, even though rendering ourselves liable to the charge of being hypercritical.

Again, as an example both of meagre and inaccurate description, we

may adduce the following passage, purporting to be a correct explanation of the volumetric test given us in the Pharmacopœia for estimating the strength of no less important a medicine than prussic acid:—

"To ascertain this strength the B. P. gives a similar quantitative test. ℥ss. *of the acid treated with excess of solution of Soda, requires the addition of* 80·66 *measures of the volumet. sol. Nitrate Silver before a permanent precipitate begins to form, which corresponds to* 2 *per cent. of anhydrous acid.* When this quantity of the silver salt is added, the Cyanide of Silver is precipitated."

Now the precipitate formed under the conditions stated is not, as incorrectly here asserted, *cyanide*, but *oxide*, of silver; and to enable our readers to estimate the *meagre* character of the proposed explanations we shall place in juxta-position with it that given us in Macnamara's Neligan, where the nature of the test is correctly stated:—

"This test is used for the purpose of estimating the amount of absolute hydrocyanic acid present in a given sample; for instance, in the Pharmacopœia it is stated that half a fluid ounce of the officinal acid, 'when treated with an excess of solution of soda, requires the addition of 80·66 measures of the volumetric solution of nitrate of silver before a permanent precipitate begins to form, which corresponds to two per cent. of anhydrous acid.' The rationale of this is, that oxide of silver is precipitated from a solution of nitrate of silver by a solution of soda, the soda abstracting the nitric acid to form nitrate of soda, and the oxide of silver being precipitated; thus, $AgONO_5 + NaO = NaONO_5 + AgO$. This latter forms, with cyanide of sodium a soluble double salt, cyanide of sodium and silver (NaCy,AgCy); thus, $2NaCy + AgO = NaCy,AgCy + NaO$. The cyanide of sodium being produced in virtue of the action of the hydrocyanic acid upon the liquor sodæ; thus $NaO + HCy = HO + NaCy$; so that no permanent precipitate can form so long as any cyanide of sodium is present in the solution. The moment it disappears the oxide of silver remains a permanent precipitate; and from this fact we judge of the entire disappearance of the cyanide of sodium, and the estimation of the per-centage of acid becomes but a simple matter of calculation. If one hundred measures of the volumetric solution correspond to 5·4 grains of absolute hydrocyanic acid, what are 80·66 measures equivalent to? 100:5·4::80·66:4·35.

That is, half a fluid ounce of the solution contains 4·35 grains of anhydrous acid. But this only gives us the quantity of anhydrous acid present in the half ounce, not its *per-centage;* to ascertain this we must have recourse to another calculation; we must ascertain the number of grains in the half ounce, and that effected, we can easily by the rule of proportion arrive at its per-centage; to ascertain the number of grains by weight in a given measure of a fluid, it becomes necessary to multiply the number of grains contained in the measure by the specific gravity of the fluid; this will give us the number of grains by weight in the quantity operated upon; thus, the weight of a fluid half ounce of distilled water being 218·75 grains, that of a fluid half ounce of the officinal hydrocyanic acid will be 218·75 + ·997 (its specific gravity) = 218 09375: which last quantity represents, as already shown, 4·35 grains of absolute acid, or as nearly as possible two *per cent.*, inasmuch as 218·09375 : 4·35 :: 100 : 1·99."

Again, if we look to the explanation given us of the method adopted in the Pharmacopeia for making the sodæ valerianas, we find our authors equally at fault in their chemistry, their explanation being to this effect:—

"Valerianic acid ($C_{10}H_9O_3$, H O) is derived from Fousel oil by the abstraction of 2 Eq. of Hydrogen, aud the addition of 2 of Oxygen. Bichromate of Potash and Sulph. acid, being distilled together with the oil, supply it with oxygen. Thus,—

$$K O, 2 Cr O_3 + 3 S O_3 = K O, S O_3 + 2 (Cr O, S O_3) + 4 O."$$

This error is more inexcusable than any of the preceding, inasmuch as reference to any standard work on chemistry would show that the action of sulphuric acid upon bichromate of potash is not what is here stated, sulphate of protoxide of chromium (Cr O, SO_3) but sulphate of the sesquioxide of chromium ($Cr_2O_3 3SO_3$) *three* atoms, and not four, of oxygen being the result of the reactions; in fact the resulting salt being a species of chrome alum, the production of which is thus accounted for—$KO\ 2\ Cr\ O_3 + 4\ SO_3\ HO = KO\ SO_3 + Cr_2\ O_3 3SO_3 + 4\ HO + O_3$.

To turn from the disagreeable duty of fault-finding to the more agreeable task of commendation, our readers are by no means to infer that all is barren in the work before us; far from it. Whilst we thus point out and condemn what is faulty in Messrs. Royle and Headland's book, and whilst in general terms we once for all repeat

that their explanations of the pharmacopeial processes are frequently incorrect, and, in most cases loose and meagre, and also that by far too little space is given to the more strictly therapeutical portion of their work, we are free to confess that most of their natural historical descriptions are good. As we have instanced passages to justify our censure, we may adduce the article on cinchona to warrant our commendation. What in all good faith we should advise our authors to do in a future edition of their work is to turn their attention to the correction and extension of those departments to which in this article we have taken exception, and as the result we will have a book far more worthy of the scientific reputation of its authors than is the present.

The second work on our list, that by Dr. Waring, is one the first edition of which frequently excited our surprise and admiration, that so valuable and so exhaustive a work could be produced by any gentleman placed under the adverse circumstances he must have been whilst writing it—quartered in a remote and solitary station in Burmah. Far from libraries, or other sources of professional aid, he compiled a work of which his *confrères* in the Indian army may well feel proud, as the production of the pen of one employed in the same service. In drawing attention to the second edition we may safely say that it more than supports the character earned for the work by its first edition. In depreciation of our author's labours it might be urged that the work is only one of compilation. We admit that fully, but not in depreciation. A more laborious, painstaking, and valuable composition does not exist in any other language on the subject—one that should be in every practising physician's and surgeon's study, without which their library, no matter how rich otherwise in works on Materia Medica, must of necessity be incomplete. We most cordially recommend it to our reader's notice, but in so doing it must be understood that it is to the man in full practice we commend it, not to the student. As a text book on Materia Medica it has no pretensions, nor has it been put forward as such by its laborious author, but to the practitioner it will be found of the greatest assistance.

The third work on our list is the second edition of a book, of the first edition of which we have already expressed ourselves in favourable terms. Like the last-named work it is eminently directed to the practitioner, being quite unsuited to discharge the duties of such

text books as Pereira's, Christison's, Neligan's, &c.; still it worthily discharges the duty to which it aspires. Less the mere record of other persons' experience than Waring's, it is written in a fuller and more professorial style. In our last notice of his work we had to take exception to some of Dr. Stillé's statements, statements which, we regret to perceive, continue in the present edition. Prominent amongst these are his observations on the plan of treatment of cholera by saline injections. These he repeats in the present edition without either modification or comment, a course of procedure which we consider unjust both to his readers and the gentlemen who have advocated, and, as they state, successfully employed, this plan of treatment. In a work professing to be an encyclopedia of therapeutics, no matter how strong may be the personal convictions of the author, he has no right to ignore, to pass over altogether—*sub silentio*—a line of practice which is stated to have been attended with such brilliant results. In most other instances, however, Dr. Stillé's work appears to be well written up to our present state of knowledge upon the subject, and we doubt not that it will long hold a high place amongst our standard works on therapeutics.

Medical Diagnosis. By J. M. Da Costa, M.D. Philadelphia, 1864. J. B. Lippincott and Co. 8vo., pp. 690; with Engravings on Wood.

The names of Mott, Wood, Flint, and a host of able writers of general and special treatises on medicine and the allied sciences, occur to our minds when we take up for perusal a work by an American author; and, truth to say it is but seldom in late years that the ardent student of practical medicine, surgery, and midwifery has recourse to the pages of an American author without at once finding the profit of his labours. To this general panegyric we must, however, make marked exception in regard to the work now before us. What object it was originally designed to serve beyond that of enabling the writer to dub himself author of a work on Medical Diagnosis we cannot conceive. A work more barren and jejune it has rarely been our fate to pass through the ordeal of critical examination and review. In his Preface the author states that "his chief aim in writing this work has been to

furnish advanced students and young graduates of medicine with a guide that might be of service to them in their endeavours to discriminate disease." "I have sought to offer to those members of the profession who are about to enter on its practical duties a book on diagnosis of an essentially practical character—one neither so meagre in detail as to be next to useless when they encounter the manifold and varying features of disease—nor so full as to be unwieldy, and lacking in precise and readily applicable knowledge." Were we to seek for language in which to fully designate the special failings of this work, we need not pass beyond the author's own—shall we say anticipated, condemnation of his labour—as contained in the passage just cited. We open a page at random to look for those practical rules, which are to guide the student or the young graduate in medicine:—"Sun Stroke," p. 94, is disposed of in somewhat more than a page and a half; "Catalepsy," in less than a page; "Tetanus," in little more than three pages; "Chronic Hydrocephalus," in less than a page; and all this with such a vagueness in the detail of symptoms that we are at a loss to know whether the writer or his reader would be found in the more helpless state of ignorance and inefficiency for purposes of diagnosis, to say nought of treatment, after maturest study of the several sections referred to. The various subsequent sections on "Diseases of the Lungs," "Diseases of the Heart," "Diseases of the Abdomen," are disposed of in an equally cursory and superficial manner. To the "student" who has read the ordinary text books the work is absolutely useless—to the "young graduate of medicine" in search of an aid to diagnosis in a difficulty of practice, it is worse than waste time and labour to have recourse to such a bald and often unconnected statement of a few leading symptoms. The chapters on Diseases of the Stomach—on Renal Affections—on Fevers, equally betray a mind wanting in all the essentials of medical graphic power. There is nought that speaks of that skill and knowledge to be got alone from actual contact with disease. Authors are cited, it is true, but with scant appreciation of their labours or the ends and aims in medicine they have worked for.

In fine, we lay down this work with as much regret and pain that it should ever have been produced, as it is well possible to feel on the part of a critic and reviewer. Not by such writings is medicine to be advanced.

1. *An Inquiry into the Relative Frequency, the Duration, and Cause of Diseases of the Skin, as deduced from the Observation of One Thousand Consecutive Cases; with Remarks on the Exanthematous Epidemic of the Spring of* 1864. By Erasmus Wilson, F.R.S. London: Churchill and Sons, 1864.

2. *The Student's Book of Cutaneous Medicine and Diseases of the Skin.* By Erasmus Wilson, F.R.S. London: Churchill and Sons. Part I., 1864. Part II., 1865.

3. *Handbook of Skin Diseases for Students and Practitioners.* By Thomas Hillier, M.D., Lond., &c. London: Walton and Maberley. 1865.

4. *On Psoriasis and Lepra.* By T. M'Call Anderson, M.D., &c. London: Churchill. 1865.

In the number of this Journal for August, 1864, we had occasion to review works on skin diseases by Blake, Caillault, Anderson, and Frazer; and subsequently, in the number for February in the current year, we reviewed at some length the recent work of Dr. Tilbury Fox on the same subject. Such being the case we do not now propose to weary our readers with a repetition of any remarks made in our former notices; nor from the length and variety of the works above grouped together will it be possible for us to give more than brief notices of some particular points in each of the volumes now before us.

It is a subject of general remark that of late years the human skin has largely attracted the attention of London practitioners. A few years ago a good book on the subject was rare; now, however, they pour from the press with astonishing rapidity, and, we must add, with greatly improved tone as regards their matter and manner. In a word, they are *bonâ fide professional* books. Whether they are published simply in the ardent pursuit of medical science, or with a view to competition for the throne of cutaneous practice which sooner or later must be vacant, it is not for us to say. The fact, however, remains, that science profits by this dermatological plethora, although it is equally true that of making books there is no end, and that the study of the most of them is verily a weariness to the flesh. Any comparison of the works now before us is

out of the question. Mr. Wilson and Dr. Hillier differ materially on the matter of classification; and where names common to both writers are not the signs of similar ideas comparisons are simply impossible.

The title of the first book above noted sufficiently explains its object, and the statistics contained in it are chiefly valuable because they are collected from cases treated by one practitioner, and that one *the* man whose experience is of more authority on this subject than that of any other man in this country.

The cases here enumerated are those occurring in middle and upper class private practice, and are altogether exclusive of the more numerous class to be met with in hospitals, dispensaries, and workhouses.

In 1,000 cases, registered under these circumstances, there occur fifty-one different diseases, which are thus arranged in order of frequency:—

Eczema,	298	Kelis,	5
Gutta rosacea,	112	Hirsuties,	5
Alphos,	73	Urticaria,	4
Acne,	55	Kérion,	4
Alopecia,	50	Leucosma,	3
Pityriasis,	43	Ecthyma,	3
Trichosis,	39	Nævus hypertrophicus	3
Scabies,	37	Purpura,	2
Lichen,	30	Sudatoria,	2
Area et calvities,	30	Cachexia cutis,	2
Syphiloderma,	30	Tumores encystici,	2
Erythema,	17	Molluscum,	2
Chloasma,	15	Morbi unguium	2
Sycosis,	14	Canities,	2
Furunculus,	14	Erysipelas	1
Prurigo et pruritus,	13	Pemphigus,	1
Lupus non exedens,	12	Roseola,	1
Scrofuloderma,	11	Hordeolum,	1
Herpes,	11	Narcosis folliculorum,	1
Melasma,	8	Favus,	1
Lupus erythematosus,	7	Verruca,	1
Impetigo,	6	Atrophia cutis,	1
Xeroderma et ichthyosis,	6	Morphœa,	1
Nævus vasculosus,	6	Elephantiasis,	1
Lupus exedens,	5	Bucnemia,	1
Carcinoma cutis,	5		

Mr. Wilson gives the foregoing numbers, divided according to what he calls a CLINICAL CLASSIFICATION, thus:—

1	Eczematous affections, .	526	
2	Erythematous, . .	23	
3	Bullous, . .	12	
4	Furuncular, . .	17	
5	Nervous, . .	13	
6	Vascular, . .	6	
7	Hæmodyscrasic, . .	2	
8	Developmental and nutritive	8	
9	Hypertrophic and Atrophic,	6	
10	Alphous, . . .	73	
11	Strumous, . .	35	
12	Syphilitic, . .	30	
13	Keloid, . . .	5	
14	Carcinomatous, . .	5	
15	Leprous, . .	2	
16	Affections of the hair and hair follicles, . .	146	
17	Affections of the sebiparous apparatus, .	60	
18	Affections of the Chromatogenous, . .	27	
19	Affections of the Sudoriparous, . . .	2	
20	Affections of the nails, .	2	
21	Phytodermic affections, .	73	

Now it is obvious that the value of this latter set of figures is greatly diminished in the eyes of the many who do not accept Mr. Wilson's "Clinical Classification" when we mention that he regards pityriasis and scabies as eczematous affections; so that when he says he met with 526 cases of eczematous affections in 1,000, he means only that *he* classes them as eczematous, not that they will be generally regarded as such. The same remarks apply to including cases of psoriasis in the 526; for in his Student's Book he looks on psoriasis as a species of eczema.

Having thus stated the sense in which Mr. Wilson uses the term eczema, we find from his researches that the age most fertile in the production of this class of diseases is that of maturity and incipient decline, ranging between the ages of 30 and 59, while the next most productive period is childhood and youth. The chronic nature of this class he also shows when he informs us that of the 526 cases 29 lasted for one month, 89 from one to six months; 30 from 6 months to 12; 85 from 1 to 5 years; 27 from 5 years to 10; 23 from 10 to 20 years; 12 from 20 to 30 years; while in three instances the disease lasted for the respective periods of 48, 57, and 70 years. Mr. Wilson looks on *debility* as the most general cause of eczema, and he divides debility into *nutritive*, *nervous*, *assimilative*, and *local*. We think his distinction between *nutritive* and *assimilative* debility is one which cannot be sustained; to us it seems that the one is implied in the consideration of the other, and we cannot understand what is meant by the writer on this part of his subject. Throughout

80 pages of large 8vo Mr. Wilson pursues each of the twenty-one groups in his clinical classification; dividing them into species, and separate diseases, and giving no end of figures as to their relative frequency and duration as to age and sex. Regarding the *causes*, we do not see that he establishes a clear proof of their connexion with the diseases, and the most that can be allowed is to admit his statements as *probable* evidence. It is, doubtless, plausible to state that debility of some kind is the chief cause of eczema, because it may be shown to exist in most cases; but to *demonstrate* the proof of connexion as to cause and effect is quite another matter.

Statistically this book is a valuable one, and will be chiefly useful to writers on cutaneous medicine, who will find ready-made calculations which may be safely given on the authority of so eminent a man as Erasmus Wilson, F.R.S.

The Student's Book of Cutaneous Medicine professes to embrace the entire subject of dermatology, and to place it in the best way before the student. It consists of two volumes, and the arrangement of the work is based on the clinical classification to which reference has already been made. It is not set down as in the former treatise, and in order to give a fair idea of the work now before us we shall give it in *extenso*. It consists of twenty-two groups, thus:—

1	Eczematous affections	13	Zymotic affections
2	Erythematous „	14	Syphilitic „
3	Bullous „	15	Leprous „
4	Furuncular „	16	Pigmentary „
5	Nervous „	17	Phytodermic „
6	Vascular „	18	Ungual „
7	Hæmic „	19	Diseases of the hair system
8	Developmental and nutritive „	20	Diseases of the sebiparous system
9	Hypertrophic and Atrophic „	21	Diseases of the sudoriparous system
10	Alphous „	22	Traumatic affections
11	Strumous „		
12	Carcinomatous „		

Pages 1–46 treat of the Anatomy and Physiology of the Skin; and pages 47–65 treat of its Pathology and of the Classification of its Diseases. Under the last head of course Mr. Wilson's Clinical Classification receives full explanation and elucidation; while the student is also given Plenck's Classification of 1776, Willan's of

1798, Alibert's of 1810, Hardy's, and (in the Appendix to Vol. II.) the now celebrated arrangement of Professor Hebra, of Vienna.

We shall take Chapter III., on Eczematous Affections, as a sample of the whole work. Here we find some very badly matched relatives which, in our view, have been wisely divorced in other systems. Eczema, psoriasis, pityriasis, lichen, impetigo, scabies, and gutta rosacea are all here given under the above head. We have already entered a protest against classing together psoriasis, and pityriasis as eczemata; and we must also include scabies. This last is entirely inconsistent with the idea on which Mr. Wilson's system is based, for it cannot be pretended that the classing of scabies as an eczematous affection gives a true idea of the nature of that disease. Further we find eczema described under various pathological forms. Thus, under the head "Regular," we have Eczema Erythematosum, E. Papulosum, E. Vesiculosum, &c.; under the head "Irregular Forms" we have E. Fissum, E. Sclerosum, E. Venucosum, &c.; under the head "Forms of Distribution" we have E. Universale, E. Figuratum, E. Diffusum, &c.; and under the head "Local Forms" we have E. Capitis, E. Faciei, E. Aurium, &c., &c. In this class of diseases Mr. Wilson looks on arsenic as an infallibly curative agent. He recommends its use in all ages; for infants under two years he would prescribe doses of one minim of Fowler's solution thrice daily.

Mr. Wilson writes on a very common disease with a seeming accuracy of description which our personal experience is unable to confirm, or offer any opinion on He says (p. 121), "The pruritus of scabies is somewhat different from that of other pruriginous complaints; it is a kind of tickling itching, and the rubbing and scratching employed to relieve it are said to be pleasurable. King James I. has the credit of having declared that none but kings and princes should have the itch, for the sensation of scratching was so delightful." From all we have seen of this interesting malady, popularly known in this country as "the Scotch fiddle," we are inclined to think that were King James now living his itchy subjects would gladly make over the royal disease to their sovereign liege. Chapter IV., on "Erythematous Affections," treats of erythema, erysipelas, urticaria, and roseola. Mr. Wilson here restores erysipelas to the place from which it has been of late rejected by writers on cutaneous medicine, who have mostly ceased to regard it as a skin disease. Chapter V., on "Bullous Affections," treats of herpes, miliaria, and pemphigus. Chapter VI.,

on "Furuncular Affections," deals with furunculus, hordeolum, anthrax, and ecthyma. Chapter VII., on "Nervous Affections," has included in it four groups, hyperesthesia, anesthesia, pruritus, and prurigo. Chapter VIII., on "Vascular Affections;" chapter IX., on "Hæmodyscrasic Affections;" Chapter X., on "Developmental and Nutritive Affections," and Chapter XI., on "Hypertrophic Affections," conclude the first volume, which space does not admit of our discussing in detail. It is one of the best books we have seen on the subject.

The second volume of Mr. Wilson's work consists of thirteen chapters (XII.–XXIV.); an appendix containing Hebra's Classification, and a copious index to the entire work. The titles of these chapters are as follows:—XII., Alphous Affections; XIII., Strumous Affections; XIV., Carcinomatous Affections; XV., Zymotic Affections; XVI., Syphilitic Affections; XVII., Leprous Affections; XVIII., Pigmentary Affections; XIX., Phytodermic Affections; XX., Ungual Affections; XXI., Affections of the Hair System; XXII., Affections of the Sebiparous System; XXIII., Affections of the Sudoriparous System; and XXIV., Traumatic Affections. Of these we particularly recommend the perusal of Chapter XV. (Zymotic Affections), specially observing the remarks on Vaccinia, at p. 353; of Chapter XVIII. (Pigmentary Affections); Chapter XXI. (Affections of the Hair System); and Chapter XXIV., on Traumatic Affections. In Chapter XII., p. 286, he makes the following practical remarks:—"The best form for the administration of arsenic is the liquor potassæ arsenitis, or Fowler's Solution. Another good form is that of De Valangin, the liquor arsenici chloridi; and, occasionally, we may have recourse to Donovan's Solution, the liquor hydriodiatis hydrargyri et arsenici; commencing with the first, we may prescribe a mixture which we believe cannot be excelled, as follows:—℞ vini ferri, ʒi ss; syrupi simplicis, ʒij; liquoris, Fowler, ʒij; aquæ puræ, ʒij; the dose to be one drachm three times a day, and taken in the middle of a meal. The patient should be furnished with a minim measure, and, after measuring the dose, he should drink it pure, out of the measure. The reasons for these instructions are, that where a medicine is to be taken for many months, and three times every day, it is important that it should be as agreeable to taste as possible; and also that it should be administered in the smallest dose practicable; again, a small quantity is less likely to nauseate the stomach than a larger one.

Secondly, by taking the dose in the middle of the meal, it is secured a more thorough admixture with the food; and it is less likely to be brought into direct contact with the mucous surface. We may add that the experience of many years has convinced us that this is the best, and therefore the only method according to which this very important remedy should be used."

In tubercular syphilis, particularly in the chronic tubercular, and superficially ulcerating forms, and also in syphiloderma palmæ et plantæ, Mr. Wilson advises the following formula (p. 374):—"decoctum Zittmanni fortius." ℞ radicis sarsæ concisæ ʒ xij, aquæ fontanæ libr. lxxij. Digest for twenty-four hours; then add, tied up in a piece of linen:—sacchari albi, aluminis āā ʒvj; calomelanos, ʒiv; hydrargyri bisulphureti rubri (cinnabar), ʒj; simmer down to 12 quarts; towards the close of the simmering, add seminum anisi contus; seminum fæniculi contus āā ʒ ss; foliorum sennæ, ʒiij; radicis glycyrrhizæ, concis, ʒiss. Press and strain, and, after standing until cool decant the clear liquid, and bottle 12 quarts." Of this decoction one *quart* is to be taken warm before noon daily.

On page 450, Mr. Wilson, discussing favus, announces his view that it is not a parasitic disease; and this he does because he does not recognize contagion as a means of communicating the affection. We cannot any further discuss the merits of this remarkable work, which we have no hesitation in pronouncing the *most useful* of the many written by Mr. Wilson, and we cordially recommend it not merely to students, but to experienced practitioners also.

Dr. Hillier's book is quite a different article from those of Mr. Wilson. Making a clean sweep of all English books previously written on his subject, he gives us this, his own production, because—"The existing books were either out of date, diffuse, inaccurate, or incomplete." As the reader proceeds he finds a general acknowledgement of the works of Hardy and Hebra, of which it seems Dr. Hillier has "largely availed" himself. Dr. Hillier adds:—"I have also obtained information from the work of Dr. Gustav Simon, from Dr. Jenner's Lectures, from MM. Bazin and Devergie's writings, and from Dr. Thompson's Treatise, edited by Dr. Parkes."

Notwithstanding all this assumption of superiority, we are bound to say that Dr. Hillier's book—always excepting the Preface—is a good one, and, like many of the best things in this world, is better than it looks. Of course he has "the author's classification," as well

as any other writer; but it is, in our opinion, much better than most others, because, to some extent, it adheres to Willan's principle of elementary lesions, while it partly proceeds on the supposed natural affinities of the diseases. Contrary to the opinion of Mr. Erasmus Wilson, Dr. Hillier believes in the parasitic nature of favus; he also restores the exanthemata to the category of skin diseases, and gives a very useful tabular view whereby the student may readily fix in his memory the diagnostics of this class of diseases. Chapter XIII., in which he treats of Morbus Addisonii, is particularly worth reading; and so are his remarks on prurigo, psoriasis, eczema, and vaccination. There is a good deal of bookmaking in the tedious records of cases which in a work of this kind may well be omitted. On the other hand there is a very useful formulary at the end of the volume, and there are two good plates giving microscopic views of morbid growths in tinea and other affections. These views are magnified 200 diameters. His style is concise and manly, and if most readers follow the common practice of reading the Preface last, they will agree with us when we commend Dr. Hillier's observation and industry, and wish every success to this really good book.

In our number for August, 1864, we reviewed Dr. M'Call Anderson's Treatise upon Eczema, and on it we remarked:—"Dr. Anderson's book is a good one, and we recommend its perusal to such as feel a special interest in its subject."

The present volume (No. 4 in our list) is a monograph, and forms the third of Dr. M'Call Anderson's *Contributions to Dermatology*. It consists of 62 pages 8vo, printed on tinted paper, and illustrated with a well executed coloured lithograph of what the author terms "Psoriasis Rupioides."

Space will not admit of our noticing more than a few points in this work.

In the first place, then, the author repudiates any difference between lepra and psoriasis. He looks on the former as merely one of the declining stages of the latter, and in this view we fully agree with him. His view is a practical one; and though our readers will recollect that it was held by the late Dr. Neligan, yet it must be borne in mind that Dr. M'Call Anderson opposes the doctrine of no less an authority than Erasmus Wilson. The coloured lithograph, already referred to, is illustrative of a variety which we shall let the author describe for himself:—"There is a peculiar appearance which psoriasis sometimes assumes, which I first observed a

good many years ago, and which has never been described. When it occurs, it may be regarded as a stage intervening between the so-called psoriasis guttata and nummularis. In it the accumulation of epidermis takes place to an unusual extent, so that on many of the patches it assumes the shape of large conical crusts marked by concentric rings. In fact, they exactly resemble in shape limpet shells, and from their likeness to crusts of rupia, I have called this variety psoriasis rupioides. Except in the shape of the crusts, however, there is no connexion whatever with rupia, and on removing a crust there is no ulceration beneath, but a slightly elevated dusky-red rounded surface is exposed to view, which sometimes bleeds a very little" (p. 4.) On p. 6 Dr. M'Call Anderson remarks that itching in psoriasis, if at all present, is moderate; and on p. 12 he states that psoriasis is rare in strumous persons. Pp. 32–35 are occupied with very useful tables of diagnosis. Thus we have a comparative view of syphilitic and non-syphilitic psoriasis; the diagnosis of dry chronic eczema from psoriasis; of pityriasis from psoriasis; of pityriasis rubra acuta, and of herpes circinatus from psoriasis. As regards treatment, he specially recommends the local application of oleum rusci obtained from the bark of the white birch. This monograph winds up with a humorous description of the baths at Leuk, from one of Murray's Hand-books, for the truth of which Dr. M'Call Anderson personally vouches. We cordially recommend this book to practical men, to whom it will doubtless prove most useful; and we hope next year to have the pleasure of reviewing a *fourth* monograph of Dr. M'Call Anderson.

On the Temperature of the Body as a Means of Diagnosis in Phthisis and Tuberculosis. By Sydney Ringer, M.D., &c. London: Walton & Maberly. 1865.

We have risen from perusing this book with feelings of no small satisfaction. Its author is an original observer; and he shows considerable lowliness of self esteem when he terms the result of much observation and tedious experiment "this pamphlet." Dr. Ringer is Professor of Materia Medica and Therapeutics at University College, Assistant Physician to University College Hospital, and Assistant Physician to the London Hospital for Sick Children. From the two latter positions he has derived much of the experience exhibited "in this paper;" the observations recorded

in which were obtained from patients under the care of Drs. Jenner, Hare, and Reynolds.

The latter and greater portion of this small volume is occupied with minute details of cases, to some of which the temperature is appended in the form of elaborate charts.

Dr. Ringer remarks that the temperature of the body should be taken by a thermometer placed in the axilla; that the patient should be in bed, and undressed for an hour before the temperature is taken; that he should be placed diagonally on the right or left side; and that he should have been previously covered up, not exposing the axilla, lest a difference of 2° or 3° Fahr. may result. If the patient has been lying on one side he should be turned diagonally on the other, so as to use the axilla which was previously most dependent. Care should be taken that the thermometer be in complete contact with the skin, and that no clothes are in the way to separate it from the surface of the body. The thermometer should remain in the axilla for at least five minutes; and it should be always tested, as even those sold by the best makers sometimes vary so much as 1° Fahr. The temperature should be taken at 8 a.m. and 8 p.m. daily, or, if only once, at the evening hour when it is elevated as compared with the morning. The preceding remarks contain the substance of Dr. Ringer's directions for the use of the thermometer; his *conclusions*, which he afterwards considers as propositions *seriatim*, are as follow:—

"1. There is probably a continued elevation of the [temperature of the] body in all cases in which a deposition of tubercle is taking place in any of its organs.

"2. This elevation of the temperature is probably due to the general condition of the body [tuberculosis], or to the deposition of tubercle in the various organs [tuberculization].

"3. This elevation is probably due to the general condition [tuberculosis] rather than to the deposition of the tubercle [tuberculization].

"4. The temperature may be taken as a measure of the amount of the tuberculosis, and tuberculization, and any fluctuations in the temperature indicate corresponding fluctuations in the severity of the disease.

"5. The temperature is a more accurate indication of the amount of tuberculosis and tuberculization than either the physical signs or the symptoms.

"6. By means of the temperature we can diagnose tuberculosis and tuberculization long before the physical signs and symptoms are sufficient to justify such a diagnosis.

"7. By means of the temperature we can diagnose tuberculosis even when, during the whole course of the disease, there are no physical signs indicative of tubercular deposit in any of the organs of the body, and in which cases the symptoms (apart from the temperature) are inadequate to enable us to arrive at such a diagnosis.

"8. It is probable that by means of the temperature we can conclude that the deposition of the tubercle has ceased, and that any physical signs that are present are due to obsolescent tubercle and the chronic thickening of the lung tissue between the tubercular deposit.

"9. It is probable, though further observations on this point are necessary, that the temperature of the body affords a means by which we can diagnose between diseases in which the symptoms and physical signs are either too scanty or too much alike to enable us to decide between them."

The details of Dr. Ringer's cases, and of others quoted by him, go to show that where phthisis or tuberculosis is present the temperature is abnormally high, from 100° to 105° Fahr.; that secondary complications did not sufficiently account for the elevation of the temperature; and that by means of temperature tuberculosis and tuberculization can be diagnosed at an early stage, long before the detection of physical signs or the appearance of symptoms. What is particularly worthy of note, and what we desire to put prominently before our readers, is the exact manner in which Dr. Ringer removes from the case all those causes or morbid conditions which might be held to influence, in any way, the result of his observations. In fact he seems to have taken every precaution to make his observations as precise as any such can be in the absence of mathematical demonstration.

It is scarcely necessary to point out the very great practical importance of the temperature of the body as a means of diagnosis in phthisis and tuberculosis. Not only does Dr. Ringer show it to be a more accurate indication of the *amount* of tuberculosis and tuberculization than either the physical signs or the symptoms; but he also shows that the advent of phthisis can, by this means, be discerned afar off, while there is yet time for medical treatment or change of climate.

The book is a little one, only 92 pages of small 8vo., in all; but we strongly recommend every physician to get it. For substantial value, clear and concise statement, and acute observation, it has few equals in this weary age of much study and many new books.

A Practical Essay on the Use of the Nitrate of Silver in the Treatment of Inflammation, Wounds, and Ulcers. By John Higginbottom, F.R.S., Hon. Fell. R.C.S., Eng. Third Edition. London: Churchill and Sons. 1865.

In the introduction to this volume Mr. Higginbottom, of Nottingham, states that his attention was first directed to the use of nitrate of silver about forty-five years ago. Accordingly we are to look in this volume for the results of a very lengthened experience; nor will the reader find his expectations disappointed in this respect. Like most riders of hobbies, Mr. Higginbottom seems to look on his favourite remedial agent as a panacea for all the ills of the flesh, just as Mr. Hunt looks on arsenic, and as the late Dr. Todd, to some extent, regarded alcohol; but, it must be admitted, that the large number of detailed cases which fill up most of his book go far to establish his theory to a greater extent than is generally admitted by the majority of practitioners. *In limine*, Mr. Higginbottom announces his belief that nitrate of silver is *not* a caustic or corrosive substance, but, on the contrary, that it possesses a peculiar *conservative* property, calculated to preserve, and not to destroy, the animal tissue to which it is applied. He recommends the formation of an eschar, which becomes "adherent and hard like a piece of black sealing-wax;" and concludes that when an eschar of this kind forms over a recent wound, the latter, under ordinary circumstances, invariably heals.

Cases are detailed to show, that by the timely application of his favourite remedy, the direful effects of punctures from needles, nails, hooks, thorns, bayonets, saws, &c., are totally prevented; that in lacerated wounds the consequent irritation and inflammation are prevented or removed; in recent contused wounds the inflammation is subdued, and consequent suppuration and loss of substance is prevented; while in phlegmonous inflammation the progress of tumefaction and inflammation is arrested, and suppuration is often prevented.

Mr. Higginbottom does not believe erysipelas to be constitutional; and his chief reason for believing it to be a local affection is the result of his practice, which satisfied him that the application of nitrate of silver was all-powerful. Neither does he believe in the doctrine of metastasis, because, during a long experience, he has never met with a single case resulting from the dreaded use of

nitrate of silver. That erysipelas is simply a local affection we do not believe Mr. Higginbottom has proved; indeed the *sensus communis* of the profession is so reasonably opposed to him on this point that we need not here discuss the question; but, we may remark that the success or failure of the use of nitrate of silver as a local application cannot vitally affect the question at all. When his remedy has been used, he believes that in simple acute erysipelas, the inflammation is immediately arrested, and quite subdued in four days; that when affecting the face and scalp, cerebral irritation is invariably prevented, and delirium ceases. Further, he is of opinion that in phlegmonous erysipelas the inflammation is often arrested, and so far subdued, as to prevent extensive sloughing of the cellular tissue; or that, if suppuration takes place, it is similar to phlegmon. The nitrate of silver is recommended to be used in so strong a solution as twenty grains to the fluid drachm; and in pp. 16–19 full directions are given as to the mode of its application under all circumstances.

Reference is also made to its use as a means of inducing the healing process, or adhesive inflammation; as a means of healing by eschar; also to its use in whitlow, variola, gangrena senilis, and destructive inflammation of the eye.

Perhaps the best part of the volume is that consisting of Chapters VI., VII., and Appendix. Chapter VI. is on the treatment of ulcers, and in it are precise directions for the use of the nitrate of silver in small irritable ulcers, with varicose veins; "on healing small ulcers by the unadherent eschar;" "of ulcers attended with inflammation;" "old ulcers of the leg," &c. The general conclusion arrived at is—that in ulcers the inflammation is removed, and the healing process greatly facilitated by the use of nitrate of silver; and that these effects are very apparent in the treatment of phagedenic ulcers.

In Chapter VII., "of burns and scalds," Mr. Higginbottom observes:—"In the first class of burns and scalds, where there is superficial inflammation, and in the second, where there is simply vesication, without destruction of the cutis vera, the application of the nitrate of silver . . . . is often a speedy remedy. The vesicles should be removed, and the nitrate of silver, either in the stick or concentrated solution, should be slightly passed *once* over the burnt or scalded surface." He then states that the application of the nitrate does not appear to increase the pain of recent burns or scalds, but rather the reverse; and that, while it excludes

the air and prevents sloughing, the healing process is generally facilitated by exposure of the parts to the open air.

In the treatment of ulcers he uses "Kirkland's neutral ointment."[a]

He finds this cerate, spread on linen, very useful, "as a defence, after using the nitrate of silver." In ulcers, with slight discharge, he uses an absorbent preparation, under which an adherent eschar is formed. This preparation is called "black lint," and is made—by saturating an ounce of fine lint in a solution of nitrate of silver, two drachms to four ounces of distilled water, and then exposing it in a flat shallow vessel to dry by evaporation.

We must not omit the following conclusions resulting from the application of nitrate of silver:—

"In large incised wounds, when the interrupted suture is used, inflammation and suppuration are prevented, and the wound heals by the first intention.

"In variola, the early pustule is immediately arrested in its progress, and the pitting of small-pox is entirely prevented.

"In dissection wounds the specific poison is neutralized, and rendered innocuous, so that all danger is prevented."

While general experience is in favour of the third of these conclusions it certainly is not so with the first and second. In the Appendix there are remarks "on the use of nitrate of silver as a blister;" and on its use in cases of gunshot wounds, neuralgia, contraction of the rectum, ulceration of the tongue, irritable ulceration near the eye, fungous ulcer of the navel in infants, and chilblains.

We have now endeavoured to give the reader a brief outline of the scope and contents of these 172 pages of large 8vo. That all Mr. Higginbottom's conclusions will be accepted by the profession we do not believe, but that many of them have been long so, and that all deserve a full consideration, we are quite certain. As a record of long experience, and of a belief, strengthened by years of untiring observation, we cordially commend this volume to the notice of the profession.

[a] ℞ Emp. plumbi, ℥vi.; olei olivæ, ℥iii.; cretæ ppt., ℥iv ss.; aceti distillati, ℥iv. Mix the acid and chalk in a mortar, and add the oil and lead plaster, previously melted together; stir all until cool, and keep under a little water.

Photographs of Eminent Medical Men of all Countries, with brief Analytical Notices of their Works. Edited by T. H. Barker, M.D., F.R.S., Edin., &c. The photographic portraits from life by Ernest Edwards, B.A. London: Churchill.

We have received three numbers of this serial, each containing three photographs, with short memoirs, of members of our profession, and we hail them with pleasure. The wish to know something of the personal appearance and history of those who have distinguished themselves, or with whose teachings and writings we have been familiar, is not unnatural. In the ranks of literature and science this wish has been very freely gratified, and we see no reason why it should not be so in medicine also. It is true, contemporary biography may be abused; but to forbid the use of that which is good, because it may be abused, is to show a consciousness of very great weakness. Some years ago an attempt was made by a few to unduly advertise themselves by the publication of their likenesses and biographies, but the voice of the profession was quite sufficient to put that down, as, no doubt, it will again if necessary. In the meantime let us enjoy the goods provided for us.

The photographs are admirably executed, and the memoirs are written with good taste and much care.

PART III.

MEDICAL MISCELLANY.

Reports, Retrospects, and Scientific Intelligence.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.[a]

DR. CHURCHILL, President.

Disease of the Mitral Valve.—DR. HAYDEN exhibited a specimen of disease of the heart, consisting of contraction of the mitral orifice and dilatation of the right auriculo-ventricular opening, together with a typical example of pulmonary apoplexy. They were taken from the body of a female, aged twenty-eight, who was admitted into the Mater Misericordiæ Hospital on the 24th of November last, and died on the 26th of January. She was a seamstress by trade, and had never had rheumatism; but he learned from her that about three years ago she complained, for the first time, of palpitation of the heart, with occasional breathlessness on making any unusual exertion. A year before she came under his observation she had cough for the first time. During four months antecedent to the time of her admission she was unable to lie down comfortably in bed, owing to the dyspnea which this change of posture produced. One month previously her feet began to swell. Her face was rather florid, with a little puffiness about the eyes; there was no lividity or congestion of the lips or of the extremities; the pulse was rapid, exceedingly weak and faltering; there was œdema of the lower extremities, great enlargement of the cervical veins, and there was a very remarkable pulsation of the jugular veins synchronous with the systole of the ventricles; the slightest pressure immediately above the clavicle stopped this pulsation; the chest was unusually resonant, and permanently distended as in inspiration; the impulse of the heart was rather strong. On examination with the stethoscope he detected the first sound, well pronounced, but somewhat rough, and immediately preceding it there was a rough murmur, loudest over the apex; it did not at all implicate the first sound There was a murmur audible over the

[a] These reports are furnished by Dr. R. W. Smith, Secretary to the Society.

centre of the sternum with the first sound—a decided systolic murmur, of a soft character, not at all like the rough murmurs, and confined to the region of the right ventricle. The second sound was clear, but was distinctly reduplicated; the reduplication being audible over the middle of the sternum, where the systolic murmur was found. He had no difficulty in diagnosing from these signs and symptoms mitral contraction; and he further ventured to say that they should find hypertrophy of the left auricle, with dilatation of the right cavities and right auriculo-ventricular opening, and emphysema of the lungs. It was unnecessary to detail the further history of the case, more than to state that on the 17th December there was hemoptysis; the blood was florid, and mixed with frothy mucus. He now learned, for the first time, from the patient, that she had repeatedly before spat blood, but never in such quantity as on this occasion. On the 31st December she complained of acute pain in the region of the heart, extending to the left scapula and down the left arm. This pain, with the accompanying respiratory distress, was of a decidedly anginal character. On the 11th of January, having examined the patient carefully from day to day, he requested his colleague, Dr. Hughes, to see the case with him. It was subsequently found that, in addition to the presystolic murmur, there was a well pronounced murmur accompanying the first sound, and constituting, as it were, a continuation of the former; thus they had two murmurs converted into one. On the following day he found that the presystolic murmur had ceased to be audible, and the systolic murmur was alone heard. A week before the patient's death both radial pulses became imperceptible. She was still able to creep about the ward, and, notwithstanding her extreme debility, declared she felt herself improved. Two days before her death she spat up a quantity of dark blood; and from this time to her death, on the 26th, respiration was exceedingly slow—it averaged fifteen in the minute. This was remarkable, considering the difficulty of aërating the blood under which the patient laboured. She now became comatose, and remained in this state up to the time of her death.

The *post mortem* examination revealed a typical example of mitral contraction, with pulmonary apoplexy. Both lungs were distinctly emphysematous, and in the apex of each there was an isolated circumscribed mass of very dark effused blood, the surrounding pulmonary tissue being reddened and of a different tint. In these situations the pulmonary tissue did not crepitate on pressure; it was hard and indurated. The base of each lung was of a slate colour, and contained extravasated blood; on the base of the left, where there had been two projections caused by emphysema, there were two masses of blood filling the emphysematous projections; the base of the right lung presented a similar condition. The pericardium contained about six ounces of serum.

The heart, especially on the right side, was greatly distended with dark-coloured blood. It had lost its ordinary figure, and was greater in its transverse than its vertical diameter. The right ventricle was considerably dilated, and its walls were slightly thickened; the right auriculo-ventricular opening was of very considerable size, but the tricuspid valves were healthy, as were also those of the pulmonary artery. The left auricle was large, and its walls considerably thickened; the openings of the pulmonary veins into the left auricle were not dilated. The left ventricle was rather smaller than normal; its walls were not thickened, but the mitral orifice was greatly contracted. The condition of the parts was very remarkable. Both segments of the mitral valve were agglutinated in such a manner as to form a funnel-shaped passage, about one inch and a quarter long, projecting into the left ventricle. The opening at the extremity of this passage would barely admit the point of the little finger. Upon one of the segments of the valve, and upon its auricular aspect, was found a very remarkable fragment of fibrine incorporated with the valve by one of its edges. It was attached to the auricular aspect of one of the segments of the valve, in such a position that it must have been displaced over the orifice by the current of blood passing from the auricle into the ventricle, and formed a sort of valve. There could be no doubt that the vibration of this partially attached fibrine must have caused a murmur synchronous with the passage of the blood into the ventricle, and that it explained fully the presystolic murmur. The aortic valves were perfectly sound, as were likewise the walls of the aorta.

The case presented some features of interest. In the first place, the pulmonary apoplexy, which was typical of its kind, probably occurred a few days before the patient's death—about the same time that she spat up the mass of jelly-like blood. About this time it had been noticed that the respiration became exceedingly slow, not more than fifteen in the minute. The patient's condition was such that any change in posture or the slightest movement caused great uneasiness and distress, so that for the last two or three days of her life he did not examine her chest. Hence he could not say that the effusion of blood into the lung had been detected stethoscopically. This effusion of blood into the lung was not due to an accident of pulmonary hemorrhage, as the effusion was isolated in several situations; and of the two causes which were commonly supposed to give rise to pulmonary apoplexy, namely, the forcible action of the right ventricle and obstruction of the mitral orifice, the latter must have been the cause in operation in the present instance; for, although the right ventricle was hypertrophied, the great dilatation of the auriculo-ventricular orifice must have been sufficient to neutralize the force of the ventricle as directed on the lung. He thought there was sufficient explanation of the pulmonary apoplexy to be found in the obstruction

which the blood must have encountered in its passage from the left auricle into the left ventricle, in consequence of the extreme contraction of the mitral orifice.—*January* 28, 1865.

Pericarditis.—Dr. Banks said the pathological specimen which he now presented to the society was taken from the body of a girl, who died on the morning of the 8th instant, in the Hardwicke Hospital. She was twenty years of age; and she stated on admission that she had always been delicate, very subject to attacks upon the chest, and very liable to take cold, and that she also suffered much from catamenial irregularity. About six days before her admission she shivered, and presented (as well as he could ascertain) the ordinary symptoms of commencing fever. She was admitted to hospital on the 31st January. She was found labouring under great respiratory distress, very rapid pulse and great restlessness. On examination of the chest the lower region at each side was found to be dull, and on the right side there was a crepitating râle. She expectorated a brownish fluid, not in the least viscid. The symptoms of respiratory distress went on increasing. She was very intolerant of any motion, but there was no affection of the joints. There was not the least reason to suppose there was anything rheumatic in the case; but she was very feverish, and the respiration rapidly rose until finally, on the day before her death, which occurred on the morning of the 8th, the respiration had attained the number of fifty-six, her pulse then being 140. The dulness increased at each side, and on the left side there was a friction sound. There was then, probably, effusion into the left pleura, and solidification of the right lung. There was dulness anteriorly also, and for the last three days of life there was a *leather-creak* sound over the heart. It was difficult to say how much of the dulness was due to pleural and how much to pericardial effusion. Two or three days before her death there was a patch of redness, about five inches in length and one and a-half inches in breadth, discovered in the vicinity of each elbow-joint, very tender to the touch, and communicating to the fingers a boggy sensation.

On opening the chest there was a considerable quantity of sero-purulent matter discovered, chiefly in the left pleural cavity, but there was some also in the right. The pleura was covered with lymph of a tenacious character; lymph had also been deposited on the right lung, at the base of which there was a small pneumonic abscess, having something of a gangrenous character about it. At the apex of the left lung there was a very small cavity of a similar character, and lined with a membrane. The pericardium contained about eight ounces of pus, creamy, and of a pinkish colour, from the mixture of a small quantity of blood. The surface of the heart was covered with lymph, which was not, however, in the least adherent, for immediately on being touched it separated from

the vascular surface beneath. The pleuro-pneumonia evidently preceded the pericardial inflammation. There was no endocarditis, and the tissue of the heart was perfectly firm, and there was not a trace of lymph on the valves.

Dr. Banks was of opinion that this had been a case of diffuse inflammation—an example of blood-poisoning. The implication of so many parts, the patches of redness on the joints, and the character of the effusion pointed to this conclusion. The sufferings of the patient were extreme. He did not think he had ever seen a patient who seemed to endure such intense agony; and for the last two or three days, so intolerant was she of the slightest disturbance, that it would have been an act of cruelty to institute a very minute examination.—*February* 11, 1864.

Smallpox Pustules in the Trachea, &c.—Dr. Corrigan observed:—The preparation which I exhibit possesses but one point of interest, but that not an unimportant one, namely, as to whether tracheotomy is an operation to which we should have recourse in cases of smallpox where the larynx is so much engaged as to threaten suffocation. The preparation consists of the trachea, larynx, and œsophagus of a boy, twelve years of age, one of nine at present in the Hardwicke Hospital in smallpox, who came from a school at Cabra, on the North Circular-road, where the disease had broken out. The boy had never been vaccinated. The disease ran into the worst form, the confluent, and on the eighth or ninth day threatened the fatal termination which occurred. About the eighth or ninth day, in addition to the secondary fever which then comes on, the boy suffered under a great difficulty of swallowing, so that any portion of fluid taken into the mouth was thrown out with violence. The child seemed to have an absolute terror of swallowing, not unlike that exhibited in cases of hydrophobia. The voice became raucous, and was soon lost. The tongue, as well as the soft palate, was covered with the pustules of smallpox; the pharynx is covered with pustules, which suddenly terminate where it joins the œsophagus, and the line of demarcation is exceedingly well marked; the pustules are thickly spread over the whole of the pharynx, the larynx, and the back of the epiglottis. I will now turn the other side of the preparation, and you will see that the operation of tracheotomy could not be thought of. The larynx is studded with pustules, and a mixture of pustules and lymph; the trachea is in a similar condition down to the bifurcation of the bronchi; so that if any operation were attempted it would open into a diseased surface and tissue, and aggravate the sufferings of the patient without even prolonging life.—*February* 11, 1865.

Ovarian Tumour.—Mr. Hamilton exhibited a large ovarian tumour, partly encysted and partly solid, which had been removed from the body

of a woman who appeared to be about thirty years of age. When she came into hospital, nine months ago, her belly was exceedingly distended, and that distension was evidently caused, in a great measure, by fluid. Fluctuation was exceedingly free, and the surface of the abdomen was permeated by large blue veins. She was emaciated to the last degree, and both her lower limbs were œdematous. She suffered considerably from dyspnea, owing, no doubt, to the displacement of the abdominal viscera, which were pressed upwards on the diaphragm. He would have tapped her at once, but there were symptoms which deterred him at the time from doing so, for she evidently laboured under peritoneal inflammation, complaining of great pain in the right side of the abdomen, particularly in the region below the liver, which was exquisitely tender, and till the inflammation was subdued tapping could not be thought of. He waited until he had subdued this inflammation by blistering and other means, and then drew off thirteen quarts of fluid. It was transparent, and of a brownish colour, like sherry and water. This operation was followed by very considerable relief, and at once she began to regain flesh. He supposed the relief of the oppressed organs was followed by increased powers of digestion and circulation; but it was quite astonishing the rapidity with which she put up flesh. The day after he drew off the fluid he was anxious to examine the state of the abdomen, with the view of considering the question of the ultimate removal of the tumour by operation. He found, however, on the left side of the abdomen, an indurated mass, about the size of three fists, uneven, nodulated on the surface, and which conveyed to his feeling the impression that it was a malignant tumour. It had that mixture of fluctuation with solidity and elasticity which, together with the nodulation of the surface, rendered it almost certain that it was of a malignant nature. He, therefore, made up his mind that it was not a case in which an operation for the removal of the tumour could be contemplated. Besides, he could not but believe, from the pain she suffered, on admission to hospital, from peritonitis, and also, previous to her admission, in different parts of the abdomen, that adhesions were very extensive. Both of these reasons, but particularly the presence of a large solid mass within the abdomen, prevented him from entertaining the idea of an operation. However, as his experience of these cases was to a certain degree limited, he was very glad to have the assistance of the opinion of his friend, Dr. M'Clintock, who, having seen the case, entirely agreed with him as to the inadvisability of any operative proceeding. His colleague, Dr. Gordon, who had operated himself, entertained a similar view. During the nine months that she was in hospital he tapped her eight times. She was always so much relieved by the operation that she was anxious for its repetition, and wished that it should be performed sooner than he thought advisable. After the first operation the nature of the fluid entirely changed; at first it

was transparent, and like sherry and water; afterwards it became opaque, and seemed exactly like thick gruel, and through it were seen shining flat bodies, which, on examination, proved to be cholestrine. When examined by the microscope, numerous pus globules were also seen in the fluid. The woman gradually grew worse and worse, and after the seventh tapping she was so much reduced and emaciated—she suffered from such constant vomiting, and from repeated attacks of diarrhea—and was so feeble, that on two or three occasions he thought she was going to die; and he came to the conclusion that he would not tap her again. However, she suffered so much from the pressure of the tumour that she earnestly asked him to do so, and, very reluctantly, a month before she died he did tap her, and with considerable relief. A week before she died the aperture he had made in tapping her opened of itself, and gave her some temporary relief. On the occasion of the last tapping he felt so much solid tumour at the lower part, and bulging across the place where he had tapped her before, below the umbilicus, that he selected a a spot above the umbilicus on the last occasion. She died on the 9th instant. He now exhibited the tumour in the same condition as it was when she died. They would see that it was composed partly of an encysted tumour, containing fluid, and partly of a large mass of solid matter, which he had no doubt was of a malignant nature. On the back of the tumour were to be seen the uterus and the ovaries; the left ovary was tolerably healthy, and the disease seemed to occupy the right. It had formed adhesions in front to the abdominal parietes, so close that the muscular structure had to be cut away in removing the tumour, and it required the greatest possible force to separate them at all; and the adhesion was so close to the liver that Mr. Harman, the resident pupil, who made the *post mortem* examination, was obliged to cut away a portion of the liver with the tumour. There were also adhesions of the upper part of the tumour to some of the intestines. The latter were pushed upwards to the diaphragm, which was thus moved so far up that the superior portion of the heart was on a level with the third rib; it looked like a heart that was compressed, was of an unusually small size, and weighed only five ounces and a-half. The kidneys were found to be healthy, but there were tubercles in the lungs. The solid part of the tumour was formed by a thick-walled cyst, no doubt of a malignant nature, containing a gelatinous fluid of a description familiar to every one who was acquainted with these ovarian tumours. The pathological characters of the ovarian tumour, and the extensive and close adhesions, proved the prudence of not undertaking the operation for its removal.—*February* 11, 1865.

Ulcer of the Stomach.—Dr. Hayden brought under the notice of the Society an example of perforating ulcer of the stomach. The viscera now before them were taken from the body of a man, aged thirty-four years,

reputedly temperate. About two years ago he complained, for the first time, of certain sensations of uneasiness in the stomach, such as acid eructations, and a feeling of peculiar discomfort after taking food. These sensations he experienced about two hours after meals, and they generally ended in an act of vomiting; this act relieved him of the sensations completely. He went on in this state for two years—the uneasiness, however, being converted into absolute pain. Occasionally he was attacked with vomiting, as already mentioned, and on three or four occasions he threw up a quantity of dark grumous matter, manifestly altered blood; he likewise passed a quantity of this matter from his bowels. He was admitted into the Mater Misericordiæ Hospital on the 13th instant. He was exceedingly pale; his pulse was quick, but otherwise normal; his tongue clean. He complained of pain about two hours after taking food, either liquid or solid; he also suffered occasionally from acid eructations; his bowels were constipated, and distended with flatus. There was no tenderness whatever over the region of the stomach; and on the most minute examination there was no physical evidence of disease of that organ to be detected. The pain which he experienced after taking food extended to the lower portion of the dorsal spine; it was not at all of a very aggravated character, very little more than uneasiness. On the morning subsequent to his admission it was found that in the interim he had vomited up a quantity of dark grumous matter. which he said was similar to what he had ejected on former occasions. This was a good example of coffee-grounds vomiting, and there were about three or four ounces of it in the spittoon. Dr. Hayden now made up his mind that he had to deal with one of two things—either some form of latent aneurism, finding entrance into the stomach—or, what was still more probable, gastric ulcer. He treated the man on the latter assumption; and on the following day he was attacked, whilst at dinner, with excruciating pain in the abdomen; he writhed under it, and became very much excited. His colleague, Dr. Cruise, who happened to be in the hospital, saw the man about four o'clock in the day, and prescribed for him; he took a very large dose or two of morphia; and he continned in this state, with very little relief, until nine o'clock, when he died of exhaustion. Although the man was exceedingly anemic, still he was not at all wasted.

On opening the abdomen, a large quantity of dark grumous matter was found diffused through the peritoneum; there was not a trace of inflammatory action; there was no peritonitis. On raising the liver from the surface of the stomach, there was found a very good example of perforation of the latter organ. The aperture was exceedingly well defined, and was larger than the largest goose quill; the edges were smooth and rounded, and the orifice was perfectly circular. The stomach was very much thickened in the neighbourhood of this opening, the edges of which and the portions of the peritoneal surface round it were discoloured from

exuded bile, for the gall bladder had lain directly over the opening. In the neighbourhood of the opening was found a quantity of lymph, lying in flakes on the surface of the stomach. On laying open the stomach, he found an ulcer in the immediate neighbourhood of the pylorus, on the anterior wall; on the internal surface the ulcer was one inch in diameter, and perfectly circular. Immediately behind this, and upon the posterior wall of the stomach, was found another ulcer, much larger in size, being two inches and a half in its long diameter, by an inch and a half in width. The floor of this ulcer was formed by the adherent pancreas, which was held closely attached to the posterior wall of the stomach. Another ulcer, of much smaller size than either of these, was observed in the immediate neighbourhood of the cardiac orifice of the stomach. This had not penetrated the walls of the stomach. It was of the size of a very large pea, its edges well defined; there were no evidences of inflammatory action, and it appeared as if the mucous membrane of the stomach had been punched out. In front of the penetrating ulcer was observed an irregular corrugated patch on the mucous surface, evidently an old cicatrized ulcer.

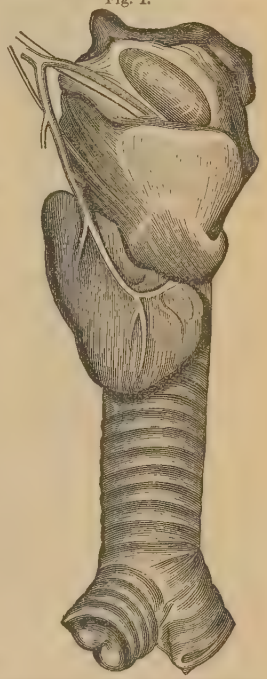
This case was of interest in one or two particulars:—Firstly, as affording a satisfactory explanation of the absence of epigastric tenderness on pressure; for here we had the right lobe of the liver lying immediately over the ulcer in the stomach, the fundus of the gall bladder lying over the opening; hence any degree of pressure did not give rise to tenderness for the liver lay between the hand of the examiner and the diseased portion of the stomach. Secondly, it appeared to him that the immediate cause of death was not exactly perforation of the stomach, but the detachment of a very frail adhesion between the fundus of the gall bladder and the peritoneal surface of the stomach. On the surface of the gall bladder was a thin layer of lymph, corresponding to the portion of the stomach that it lay in contact with. It was very possible that that lymph, which acted as a bond of cohesion between the gall bladder and the stomach, was of a frail character, owing to the constant transfusion from the gall bladder into it; and when the man took a full meal, this adhesion was broken up, and the contents of the stomach were discharged into the cavity of the abdomen. The appearance of the ulcer showed this; it was well defined, without jagged edges; and the presence of coagulated lymph diffused in the immediate neighbourhood of the opening still further tended to confirm this view. Thirdly, the case was of interest as regards the condition of the patient; he was not emaciated, though the disease had lasted over two years. There was an explanation of this remarkable circumstance, probably, to be found in the fact, that notwithstanding that the pyloric extremity of the stomach was diseased, the remaining portion of the organ was in a healthy state, and the man was therefore capable of absorbing albuminous aliments at all periods since the commencement of his illness.—*February*, 18, 1865.

Vesico-Vaginal Fistula.—Dr. Banon exhibited the edge of a vesico-vaginal fistula, removed by Dr. Kidd at the Coombe Lying-in Hospital. They were all aware that the treatment of vesico-vaginal fistula had within the last few years been very much improved—a new era in the treatment of this formidable and most unpleasant affection had, in fact, been inaugurated during the last ten or twelve years. They were also aware that these fistulæ varied in size; the vesico-vaginal septum was in some instances so extensively injured that the greater portion of the bladder protruded into the vagina; in other instances the fistula was so small as scarcely to admit a small probe, but still large enough to cause all the symptoms of this distressing malady. About two years since he met with one of these small pin-hole fistulæ, as they are termed, and was assisted in the examination of it by Drs. Beatty and Spencer Wells, of London. It was situated very high up in the vagina, which was narrow; the subject was an old woman, aged seventy. Owing to the narrowness of the vagina, and the distance at which the fistula was situated from the external parts of the organ, there would be very great difficulty in paring its edges. Under these circumstances he was put to his wits' end to try to overcome the difficulty, and had invented a little instrument, which was exceedingly simple, and acted very well in assisting the operator in paring the edges of these small fistulæ; it was a steel bent probe, or sound, fixed in a handle; it could be forced into the smallest fistula; projecting backwards there were four elongated points, which, on withdrawing the instrument, after having introduced it freely through the fistula, would grapple or catch its edges on every side. Previous to introducing it the object would be much facilitated by passing a sound into the bladder, and raising the vesico-vaginal membrane towards the operator. In this way the operator could pass the instrument through the small fistula; and, holding the instrument in the left hand, and making the parts tense, it became very easy to divide them, passing the knife so as to cut out the instrument, including of course the whole edge of the fistulous opening; this is one of the principal advantages to be derived from its use. The parts as removed are here seen, still attached to the instrument, and the elliptical shape was selected by Dr. Kidd as that most convenient for subsequent coaptation.

Dr. Banon has recently published a series of ten or eleven successful cases of operation on vesico-vaginal fistulæ, three or four of which were of the small or pin-hole variety, in which he had used the instrument referred to, and now exhibited to the society. It had also been successfully used on two occasions by Dr. Kidd, and also by Dr. Cronin. His object in bringing the subject before the society was, partly to show this frequent form of fistula, and also an instrument which he and others who have used it, found of advantage in the surgical treatment of this affection.—*February*, 18, 1865.

Malformation of the Larynx.[a]—Dr. Bennett exhibited a human larynx in which there existed fully developed laryngeal pouches, such as are found in the class *Quadrumana*. He obtained the specimen, accidentally, in the dissecting-room of Trinity College, in the body of a male subject, about twenty-four years of age. While dissecting over the thyro-hyoid membrane, in order to demonstrate the presence of the bursa which usually occurs over the projecting portion of the thyroid cartilage, his attention was arrested by a cystic structure, which was opened accidentally, on one side; a probe, passed downwards through the opening, entered readily into the larynx. Thinking, at first, that this cavity and passage might be the result of disease, he at once examined the corresponding region on the opposite side, and found a similar sac there. This fact, as well as the healthy appearance of the structures composing the sacs, suggested that the case was one of abnormal developement of the laryngeal pouches. In order to make a careful examination of the larynx, he removed it, with the hyoid bone and thyroid body attached to it. On the right side (Fig. 1.), the thyro-hyoid muscle being removed, the pouch is seen in relation to the surrounding parts; it occupies nearly all the space which is covered by the thin lateral portion of the thyro-hyoid membrane. Appearing above the border of the thyroid cartilage, immediately external to the lower portion of the mass of fat erroneously called the epiglottidean gland, the sac extends, upwards and outwards, almost as far as the lateral thyro-hyoid ligament; its lower border rests on the superior laryngeal vessels and nerve as they pass into the larynx; superiorly the sac is in contact with the epiglottidean gland and the under surface of the great horn of the hyoid bone. The membrane forming the sac is thin, very loosely connected to the parts around it, and is studded with numerous small glands. On the left side (Fig. 2.) the ala of the thyroid cartilage has been removed, and its section is seen in front; the thyroid gland and crico-thyroid muscle are also removed on this side. By this dissection the sac is exposed down to the point at which it opens into the larynx. Immediately in contact with the lower part are the fibres of the thyro-epiglottidean muscle, and below these are seen the thyro-arytenoid and crico-arytenoid muscles; the fibres of the first-named

Fig. 1.



[a] The preparation is preserved in the Anatomical Museum of Trinity College.

muscle pass behind the sac as they go to be attached to the epiglottis. On examining the interior of the larynx (Fig. 3.) the probe passed

Fig. 2.

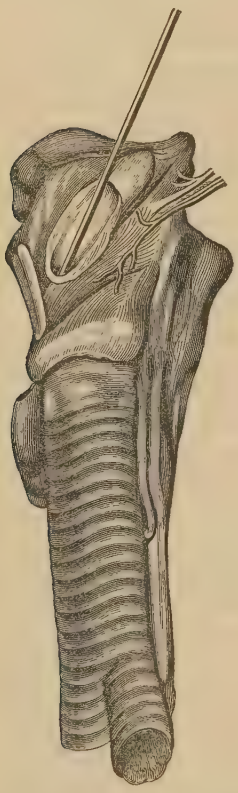
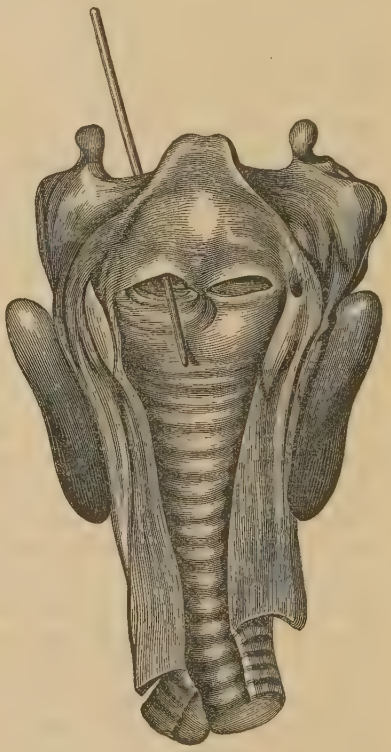


Fig. 3.



through the sac from without appears beneath the anterior part of the false vocal chords, and enters the ventricle of the larynx by an opening of oval shape, about three-fifths of an inch in length. It will be seen that the position of this opening is exactly the same as that of the little pouch called sacculus laryngis, which normally opens off the highest point of the ventricle of the larynx, and which has been described and figured by Morgagni and Hilton.

The fibres of the inferior aryteno-epiglottidean muscle pass across the laryngeal surface of the lower end of the sac, and can be exposed by raising the mucous membrane. In their position, shape, and relations these pouches resemble exactly the lateral laryngeal pouches of *Quadrumana;* and their development in this case shows that, whatever function we may assign to those organs, we must regard the sacculus laryngis of Hilton as the rudiment of them in man. Even a single case, such as this,

must lead us to modify the statement of Dr. Carpenter as to the visceral peculiarities of man, especially as the sacculus laryngis, though variable, is very constant in its presence.

Dr. Carpenter says as follows, in the chapter in which he treats of the distinctive peculiarities of man (*Principles of Human Physiology*, p. 10):—"The visceral apparatus of man presents very characteristic peculiarities, by which it can be distinguished from that of the higher *Quadrumana;* among the most remarkable is the absence of the laryngeal pouches, which exist even in the chimpanzee and ourang outang as dilatations of the laryngeal ventricles." We cannot admit this statement as regards the lateral pouches, and not even absolutely as regards the central pouch of *Quadrumana.* There is not, indeed, any instance on record of a central pouch in man communicating with the larynx, but we have the representative of the pouch itself in the bursa which occurs in man over the point of the pomum Adami; this bursa has all the anatomical relations of the pouch, except its opening through the stalk of the epiglottis.—*February* 25, 1865.

Cirrhosis of the Kidneys.—Dr. Banks said, the morbid specimen which he now presented to the society was taken from the body of a woman, who died on the 22nd inst., in the Whitworth Hospital. She was aged twenty-seven, and was received into the hospital on the 27th of last October. She stated that until three or four days before her admission she was in the enjoyment of perfect health. She had a severe wetting, got chilled, and shortly afterwards suffered from pain in the back, with frequent passing of water, and she soon perceived that there was some swelling in her face. On her admission into hospital, on the third or fourth day after her first complaining, it was found that she was labouring under acute renal dropsy. There was anasarca of the whole body, and some effusion also into the peritoneum. The urine was a little above the normal density, of high colour, and abounding in albumen. Under treatment the dropsical symptoms completely disappeared; and at the expiration of about six weeks, thinking herself quite well, but contrary to advice, she left the hospital. She appeared to be well, but the urine still contained some albumen. She went on for a considerable time, according to her own account on re-admission, in the possession of perfect health; but again she was exposed to cold, and there was a recurrence of the same train of symptoms. She was received into hospital for the second time on the 29th of January.

She was then anemic, and universally dropsical; the cellular tissue all over the body was the seat of effusion. She had also bronchitis, and the urine was then found to be totally different from the conditions that it presented on her first admission: it was now of low density (1011), much less albuminous, and on microscopic examination it presented the

characteristic appearances which belong to chronic renal disease. From the time of her second admission no impression was made by treatment on the dropsical symptoms; and on the 14th of last month she, for the first time, was found to be extremely drowsy; in fact, she was asleep, and snoring loudly, on the occasion of the daily visit, and the patients said she was asleep the greater part of the day before. It was quite evident that uremic intoxication was impending. The second night after this she was attacked with severe convulsions; the right side of the body being more affected than the left. After the convulsions ceased, the patient passed almost into a state of coma, but she could be roused by speaking sharply to her. On the next day she was in pretty much the same state as before the attack, still drowsy, but intelligent, and able to answer questions. A few nights afterwards she had another attack of convulsions, and altogether she had five or six of these attacks, and in one of the fits she bit her tongue slightly. On the occasion of the last fit, which occurred on the 22nd of February, the last day of her life, Mr. Little, the resident pupil, observed her in the fit, which continued ten minutes, and she passed from it into coma. The right side was violently convulsed, much more than the left, which was also affected.

On examination after death, it was found that the brain was very remarkably anemic. There was an inconsiderable amount of serum in the ventricles, but there was a good deal under the arachnoid membrane. The kidneys afforded a beautiful example of the small contracted cirrhosed kidney, hard and lobular; the right kidney weighed but two ounces and a quarter, and the left weighed barely two ounces. The capsule was firmly adherent to the tissue of the kidney underneath. The liver was also small, and doubtless the process of cirrhosis had commenced in it. The amount of fluid in the peritoneum was much greater than could be accounted for by looking upon it as part of the general dropsy. The bronchial tubes exhibited the usual appearances of inflammation. The heart was enlarged, particularly the left ventricle; and the valves were thickened at the edges, and puckered. One point of interest to which Dr. Banks wished to direct the attention of the society was, the rapidity with which the disease ran its course. They were familiar with cases which, commencing like the present, lasted for years. Here, however, was a case which could not be traced back further than the 29th of September. He believed that the small cirrhosed kidney in this case was the result of acute disease; and, if so, it was a remarkable exception to the general rule, for assuredly the process of cirrhosis is almost always chronic.—*February* 25, 1865.

Malignant Tumour.—Mr. Tufnell exhibited a tumour which he had removed a few days previously from the outer border of the thigh of a man, fifty-four years of age. He received, in August, 1863, a kick from a

horse, which was followed by ecchymosis at the time. Shortly afterwards he observed a small warty growth at this place about the size of a stud button; but whether this was a coincidence, or a consequence, it was impossible to say. This warty growth gradually increased into a tumour, which at first was pedunculated, but subsequently changed considerably; and when the man came under Mr. Tufnell's observation the base of the tumour was broad—fully seven inches long, and three or four wide, exceedingly dense, and firmly attached at the base. It had three nodules on the surface, each of the diameter of the top of the thumb; one of which was perfectly livid, and on puncturing yielded its contents—pure blood.

Mr. Tufnell removed the tumour, with a portion of the muscular structure, which was necessary, so firmly was it attached. Upon turning the tumour up, and examining its base, it exhibited three other nodules; so that, whilst three came forward anteriorly and externally, the same thing took place posteriorly at the base, and down into the structure of the thigh. The question then arose as to where the disease originated—whether there was a cutaneous disease generated at the surface, and a deep-seated malignant disease also generated as the result of the injury to the deeper seated structures below. He thought they could hardly doubt, looking at the section of the tumour, that it was malignant.

Dr. Barker, Curator of the Museum of the College of Surgeons, had examined it under the microscope, and the cells presented all the characters of malignant diease, and to the naked eye it gave that appearance. It resembled very much a case of malignant disease of the testicle described by Sir Astley Cooper; the glands in the groin were slightly enlarged.

Mr. Tufnell remarked, in conclusion, that he would be able to trace the subsequent history of this man, and would make it his duty to report it to the society hereafter.—*February* 25, 1865.

Caries of the Tarsal Bones.—Mr. Croly said, that he had the honour of laying before the society, at its first meeting, a foot affected with scrofulous caries, for which he had performed Syme's amputation at the ankle-joint, in the City of Dublin Hospital. He had also on that occasion called their attention to a section of the tibia, showing that the disease extended into that bone; requiring amputation higher up. He now had to lay before them a very interesting specimen of caries of the bones of the foot, affecting the cuneiform, cuboid, and scaphoid bones. The disease commenced at the junction of the metatarsal bone of the great toe with the internal cuneiform. The patient was of a scrofulous habit. When admitted into the City of Dublin Hospital under his care, in November last, he intended to remove the metatarsal bone of the great toe with the internal cuneiform. On the day fixed for the operation, however, the

man was attacked with a severe rigor, followed by erysipelas, which was confined to the foot. He made a free incision on the dorsum of the foot, to relieve the tension; and subsequently an abscess formed underneath, where the disease commenced, requiring another free incision. The man was treated by antiscrofulous medicines, and was given good, nutritive diet. He left the hospital; but soon returned, very much exhausted, and requested him to operate; but his health at that time not being sufficiently good, he was obliged again to postpone it. On last Tuesday he performed the operation known as Chopart's, cutting from the spur on the scaphoid bone on the inside to the cuboid bone on the outside, and making the flap from the sole of the foot. It was very interesting to observe that the disease in the cuboid bone had gone as far as the cartilage, and in the scaphoid bone it had invaded a portion of the cartilage. There was no disease in the head of the astragalus.—*February*, 25, 1865.

Ecchymosis of the Stomach.—Dr. Bennett exhibited a specimen of ecchymosis of the mucous membrane of the stomach. He was unable to give any history of the case during life, as the specimen was taken from the body of a middle-aged man, that had been brought into the anatomical theatre of Trinity College. It was a good deal wasted, but presented no external signs of purpura. One leg had been amputated below the knee long before the death of the individual. Upon opening the stomach, the contents were found to be of the ordinary character, and free from any trace of blood, either pure or altered by gastric action. There was no trace of blood in any part of the intestinal canal. The mucous membrane of the stomach presented a very remarkable appearance; its entire surface was marked with circular spots of ecchymosis, ranging in size from that of a fourpenny piece to mere specks, resembling the cutaneous eruption of purpura, except that their colour was coal black, and their surface convex. The blood constituting these spots was deposited immediately under the epithelium of the mucous membrane, and both the epithelium and it could be removed by the slightest scraping; in the intervals between the spots the membrane looked natural, and was free from any sign of congestion. The appearance of the eruption at first sight was such as one might imagine to have been produced by sprinkling the membrane with concentrated oil of vitriol. Cruveilhier has represented a similar appearance, accidentally discovered in the body of an individual who had died of some chronic malady unconnected with disease of the stomach. The only difference between the cases was, that in Cruveilhier's there was blood found in the intestines, while in the present one the eruption on the membrane was more regular, and the spots much more numerous. The condition of the viscera of the abdomen did not account for this escape of blood. The liver seemed quite healthy, there being nothing abnormal about it. The gall bladder contained several of that

rarer form of gall stone called by Budd "hepatic gall stone." The only information which the examination of other organs gave of the cause of the condition of the stomach was derived from the state of the arterial system, as might be seen by the portion of the aorta exhibited, the coats of which were affected with atheromatous disease in every part; and the removal of the deposit had in two places led to the formation of small dissecting aneurisms. All the arteries of the body were more or less diseased, and probably the minute vessels of the stomach were similarly affected.—*March* 4, 1865.

Disease of the Aortic and Mitral Orifices.—Dr. Hayden exhibited an example of disease of the heart, and of peritonitis consequent upon the operation of paracentesis abdominis. The patient was a female, aged fifty-one, who had travelled in many parts of the world in the capacity of governess, and had enjoyed excellent health up to the 8th of August last. On that day she observed, for the first time, on attempting to put on her boots, that her feet were swollen. Within a few weeks subsequently there was considerable effusion into the peritoneum; and for the relief of the distress of breathing consequent upon this, the operation of paracentesis was performed on two occasions. On the first occasion four gallons of fluid were removed, and on the second about half that quantity. She was admitted into hospital on the 23rd of February. Her face was then livid; the conjunctivæ were slightly jaundiced; the pulse 96; the breathing was greatly embarrassed, and weak, but regular. There was much effusion into the peritoneum. On placing my hand upon the heart, I detected a rather feeble impulse; and on applying the stethoscope I discovered a murmer with the first sound below and a little to the outside of the left nipple. It was still more distinctly audible over the lower part of the sternum, and thence it was traceable upwards along the course of the ascending portion of the arch of the aorta to the junction of the third right costal cartilage with the sternum, and no further. The second sound was normal; respiration was natural over the anterior part of the chest. Over the base of the left lung and posteriorly there was dulness, and over both places, behind, loud crepitant râles were audible. She besought me earnestly to perform the operation of tapping to relieve the difficulty she felt in respiration, and I accordingly did so on the evening of the 23rd February, and drew off two and a half gallons of amber-coloured serum. The operation was followed by great relief to the breathing. I was struck with the remarkable appearance presented by the liver. When the abdominal walls collapsed, after the removal of the fluid, its inferior left margin stood out prominently, exactly parallel with the right costal cartilages, and three or four inches below them. An examination of the left side showed there was no enlargement of the spleen.

On the day after the operation (24th February) the pulse had risen to

132, and was weak. The liver had subsided, and now occupied its ordinary position. The diagnosis which I formed after repeated examinations was that of regurgitant disease of the mitral orifice, and obstructive disease of some form at the aortic orifice, together with engorgement of the liver consequent upon the disease of the heart. The patient, two or three days subsequently, complained, for the first time, of tenderness of the abdomen. I had little doubt on my mind, taking this symptom in conjunction with the others, and also from the expression of the face, that peritonitis had been set up in consequence of the operation. The patient died on the 28th February.

On opening the abdomen, a large quantity of opaque milky-looking fluid, at least one and a half gallon, was discovered, with flakes of lymph floating in it. The entire peritoneal surface presents *the peculiar* appearance characteristic of acute peritonitis. The condition of the liver was such as to show that the patient had been the victim of tight lacing; it presented a transverse groove, corresponding to the right costal cartilages; the pressure exercised in this direction had elongated it, and at the same time diminished its width from right to left. The falciform ligament had become greatly thickened, and lay for a distance of an inch and a half upon the anterior surface of the left lobe, to which it adhered. The liver was also somewhat larger than usual, but in other respects was healthy.

The pericardium contained four ounces of fluid; and there was a considerable deposit of fat upon the anterior surface of the heart, but it did not invade the muscular structure. The right ventricle was not enlarged, but its walls were thickened; occupying the right auricle, and thence descending into the ventricle was a flake of fibrin, which, by fixing the anterior end of the right segment of the tricuspid valve to the corresponding wall of the ventricle, had rendered it incompetent. The left ventricle was decidedly thicker in its walls than it should be; the cavity was rather contracted than dilated. The anterior and right segment of the mitral valve was greatly thickened, and rather rough on the surface, while the posterior and left segment was quite unaffected. On passing my finger into the aortic orifice, I experienced a grating sensation; and on examining into the cause, I found a considerable deposit of calcareous matter on that portion of the internal surface of the aorta corresponding with the margins of the everted valves. Above this the aortic wall itself was in a state of incipient atheromatous degeneration; the aortic valves were healthy. The lungs were engorged, especially their inferior portions.

The interest which this case possesses, if any, is chiefly connected with the state of the aortic orifice, but in some measure also with the unusual position of the liver. We have here an example of disease of the walls of the aorta (not the valves), giving rise to the phenomena commonly interpreted as evidence of disease of the valves themselves, yet the valves were healthy. The systolic murmur was traceable upwards to a certain

distance, the second sound being healthy; there was at the same time disease of the mitral orifice; this, of course, gave rise to the murmur which was heard in the region of the apex of the heart. The unusual position occupied by the liver, after the operation, I was disposed at the time to attribute to adhesion of its anterior surface to the abdominal wall, as a consequence of the previous tapping; as now shown, it was due to shortening and adhesion of the falciform ligament, as already mentioned.—*March* 4, 1865.

Croup.—Dr. Duncan exhibited a preparation illustrative of a case of croup occurring in an infant thirteen months old. The child was brought to the dispensary of the hospital on the previous morning, and was seen by his colleague, Dr. Walsh. It was in perfect health on Thursday morning; at twelve o'clock; it was then taken out into the open air by its grandmother, and about half-past one o'clock was seized with difficulty of breathing. Yesterday morning it was brought into the hospital almost in a state of asphyxia, with intense dyspnea, and occasional but distinct croupy breathing. It was placed under his (Dr. Duncan's) care in the hospital, where he saw it at half-past eleven o'clock. On examining the chest, he arrived at the conclusion that lobular pneumonia existed at the base of the right lung. The grounds on which he rested his diagnosis were these—not simply that it is the most common form of pneumonia occurring in infants, but because there was not that marked dulness on percussion which occurs when there is extensive solidification of the lung; nor was there any crepitus; there was an entire absence of bronchial râle; there was bronchial respiration, and the wooden sound on percussion in that part of the lung. Convulsions set in on Friday evening, and the child died that night.

On examining the body, a false membrane was found lining the entire of the trachea down to its bifurcation—not a particle of it appeared above the rima glottidis: the membrane was tenacious, and well formed. On examining the several bronchial tubes, there did not appear to be much evidence of bronchitis, but there was lobular pneumonia in that portion of the lung which gave indications of it during life.

The case was interesting in some points of view. First, as showing the extreme rapidity with which a false membrane of this kind can be formed; it showed, also, the utter inutility of any surgical interference. The case was remarkable in this respect, that the croupy sound of the respiration was only heard occasionally—a point which might lead to the suspicion that the case was one of spasmodic croup; the history, however, showed clearly that this was not so. Then there was no evidence of its being of a diphtheritic character; for the pulse was not the weak compressible one which was met with in patients suffering from diphtheria. The other lung was healthy in the greater part of its extent, but presented in one

part appearances of an unresolved pneumonia, from an attack of which the child had suffered six months previously, the lung being carnified. Round the solidified portion there was an emphysematous condition of the pulmonary tissue.—*March* 11, 1865.

Pneumothorax.—Dr. Corrigan brought under the notice of the society a case of pneumothorax, occurring at a much earlier period than usual in the progress of phthisis. The patient was a policeman, forty years of age, who was on duty up to the 23rd of February; and the history he gave of his case, when he entered hospital, was, that he had been in perfect health until November last, when, having heated himself in arresting a man, and having been on night duty for some hours afterwards he caught cold; he coughed and expectorated, though not in large quantities, and continued at his duty up to the 23rd of February. He was then on duty in the Bank, when he was seized with a sudden fit of severe coughing, which continued twenty minutes, and which he described as being of an extremely spasmodic nature. In this fit of coughing he was seized with pain and with shortness of breathing, and his distress became so great that he was obliged to retire from the Bank. The dyspnea continued, and he was admitted to hospital on the 27th of February. We examined him on that day. As he sat up in bed he presented the appearance of a man who had received a great shock. His face was pallid, his lips livid, but not congested; there was no evidence of venous congestion about him; his respiration was very rapid. On examining him, the following evidences of the existence of pneumothorax were discovered:—The right side of the chest was resonant on percussion; the left was in a normal state; the heart was not displaced. On using succussion, we could not perceive that peculiar splashing sound that indicates an admixture of fluid and air in the cavity of the pleura; but on applying the stethoscope over the third and fifth ribs, loud amphoric resonance was observed. On applying it over the right scapular region, the amphoric resonance was extremely loud. There was, then, no doubt as to the nature of the disease; it was evident that a fistulous communication had taken place between one of the bronchial tubes (probably through a tubercular excavation) into the cavity of the pleura.

From the shock he had sustained he never rallied; his pulse was extremely weak, and his respiration rapid, but there was no congestion anywhere, or evidence of pressure obstructing the return of the blood through the veins. He was relieved from these symptoms, and remained in hospital from the 27th of February to the 8th of March, when he became exceedingly weak, lying in bed with a pallid countenance, and scarcely perceptible pulse; he sank gradually, and died that night.

On making a *post mortem* examination, the left lung was found congested and tubercles were deposited here and there. Upon the right side

the intercostal spaces were bulged out, and the chest tympanitic; and on passing a tube through the parietes, the air rushed out with such force as to blow out a candle. On examining the lung it was found carnified; it resembled a piece of muscle, and sank in water. The pleura was covered with lymph of an unhealthy character. On exposing the right lung, and following the bronchial tube down, we came to a cavity of rather small size; there were tubercles scattered about it, but the cavity itself had no morbid deposit around it. It would probably have got well, and become a mere secreting cavity lined with a membrane, and life might have been preserved for many years, but for the attack of pneumothorax and pleuritis. The fistulous opening by which the air escaped admitted of the passage of a small straw. The history of the case, and the appearances presented on dissection, all correspond so far. The only point of great importance in the case is the fact that the rupture took place so very early in the course of phthisis.

There is, however, another point deserving of attention:—As already stated, the man had been relieved from the distress of breathing; but on the day before he died, began to grow very weak, and the pulse gradually became so feeble that it gave no impulse to the hand, and he sank and died from excessive debility of the circulating system. Dr. Corrigan said he had seen the same thing occur where a patient seemed to be recovering from fever. At a time when he was deemed convalescent, he began to grow gradually weak; the pulse failed, until at last it ceased to be felt; and on examination after death, there was found what existed in the present case also, and what may be called embolism of the heart; that is, the formation of a fibrinous deposit in the heart. It was, of course, of recent formation, and Dr. Corrigan believed that it was formed during life. It is probable that in such a case as this the heart not acting fully each time to expel the blood, a portion in the centre coagulates and forms the polypus, which then rapidly increases in size, and is probably the cause of death by obstructing the circulation. That such polypus may be formed during life he had no doubt, for he had sometimes seen the portion of polypus which lay in the aortic opening constricted and marked by the action of the valves, which could have occurred only during life.

Another reason in favour of this supposition is, that where polypi exist in the right ventricle, a portion of the black blood is found combined with them; whereas in this case it has been almost completely washed away.—*March* 11, 1865.

Tumour of the Cranium.—Dr. Edward Hamilton said, the preparation which he now exhibited to the society was taken from the body of a female, who was for several months under his observation in Steevens' Hospital. She was admitted complaining of a tumour in the upper portion

of the frontal region; it was soft, pulsating, and could apparently be diminished by pressure; it presented, however, no bruit; but vessels of tolerably large size could be found coursing over its surface; she did not complain of pain.

The history she gave of the case was, that she had suffered some slight pain or uneasiness while carrying a heavy basket on her head, some months before her admission into hospital, and since then it had increased considerably. Her general health appeared tolerably good, and she did not present any of the appearances of malignant cachexia.

It now became a matter of very anxious investigation as to whether or not this tumour communicated with the cavity of the cranium, but there was no evidence whatever to lead to the conclusion that such was the case. The tumour presented no respiratory movement; it presented no impulse on coughing; no cerebral disturbance was produced by forcible and direct pressure on the tumour; and the patient did not suffer from vertigo or paralysis. Various methods of treatment were adopted. The vessels leading to the tumour were, some tied, and some compressed. Compression was exerted over the tumour, injection by perchloride of iron was used, and a subcutaneous ligature passed round the base of the tumour, in order to strangulate it. The morbid growth went on increasing in size, until at last the integument ulcerated, presenting a bleeding surface, from which copious hemorrhages occurred at each dressing, and on more than one occasion threatened to cause the patient's death. At last she sank from the effects of these repeated attacks of hemorrhage.

On making a *post mortem* examination, there was found on the external surface a large fungous mass, which on section presented a surface very much resembling brain, with spots of coagulated blood in various parts of it. A considerable portion of the tumour was outside the cavity of the cranium. They had then a constricted portion of it passing out through an irregular opening in the frontal bone, where it joined the parietal bone. The portion of the tumour within the cavity was still more like cerebral substance. The dura mater was very little changed, the external surface merely presenting a few Pachionian bodies upon it. The surface of the right hemisphere of the brain presented a distinct depression, corresponding to the seat of the tumour; yet the woman never at any time complained of the slightest symptoms of cerebral disturbance, barely even complaining of headache. When she was some time under observation she drew attention to a tumour which occupied the sternal end of the clavicle; it was round, softened, presenting to the eye distinct evidence of pulsation, and to the ear a distinct *bruit de souffle.*

The question might arise as to whether this tumour originated from the dura mater, or from the diploë, and made its way both internally and externally. He thought the appearance of the disease in the second situation, so closely corresponding to the appearance on the head, would

show that the disease was in the first instance of osseous origin.—*March* 11, 1865.

Disease of the Mitral Valve; Pulmonary Apoplexy.—Dr. Duncan brought under the notice of the society a case of pulmonary apoplexy which presented some points of interest. The subject was a female, aged forty-six, who was admitted to the Adelaide Hospital on the 27th of January, under the care of Dr. Head, with the signs and symptoms of pneumonia; she had cough, dyspnea, the peculiar aspect, the rusty expectoration, with dulness on percussion, and distinct crepitus; but the pneumonia was local, being confined to a small portion of the upper part of the left lung. The case was intrusted to Dr. Duncan's care about the 4th of February, and shortly after this he discovered, for the first time, a bruit with the first sound towards the apex of the heart. The bruit was soft and short, but towards the close a little rough; there was a distinct interval of rest in the heart's action. It was stated to him that no bruit had been previously observed; from this he was led to infer that he had recent endocarditis to contend with; this was a mistake, the lesion proving to be disease of the mitral valve; but, though the narrowing of the aperture was considerable, there was a certain amount of regurgitation permitted. It was an old lesion, instead of one that had come on during her last illness. The woman stated that for seven years before this she had been subject to palpitation, but there was no other evidence of previous heart disease. At the time of her admission into the hospital, she laboured under œdema of the lower extremities. The case did not progress satisfactorily; although the pneumonia diminished in intensity, it was not subdued; the dulness on percussion became less, but was not removed, and crepitus remained through parts of the chest. The pneumonia had extended to the lower part of the left lung, and she died on the previous Saturday. About a week before her death she had hemoptysis; the blood was of a bright florid colour, and intimately mixed with expectorations of a viscid character, and contained minute bubbles of air through every part of it.

On examining the heart, he found the left auricle enormously enlarged, with its walls greatly thickened; and the left ventricle was small in comparison to the other portions of the heart. He should have mentioned that there was no bruit whatever at the base of the heart. There was a narrowing of the left auriculo-ventricular opening, with some amount of roughness on the auricular aspect of the valve; but yet this opening, small as it was, was patulous, so as to admit of a small amount of regurgitation from the ventricle into the auricle. The right ventricle was considerably enlarged in capacity, and hypertrophied in structure, and there was a considerable deposit of fat on its surface.

The interesting points of this case were—first, the fact that we have

a pulmonary apoplexy occurring in an attack of acute pneumonia, which he believed to be unusual; and the second was, the character of the hemoptysis. The blood was of a bright florid colour, not copious, but continuous for some days; whereas generally, as far as his observation extended, in hemoptysis in cases of pulmonary apoplexy the blood was of a dark colour. The older pathologists attributed this lesion to hypertrophy of the right ventricle—a condition which, he conceived, was always consecutive to some other lesion, as in the instance under consideration. It was true that there was well-marked hypertrophy present in this case; but he was persuaded that the obstruction to the passage of the blood from the lung to the left ventricle had a great deal more to say to the production of an apoplectic condition of the lung than the hypertrophy of the right ventricle. The narrowing of the auriculo-ventricular opening did not necessarily lead to pulmonary apoplexy, as appeared from another case, a drawing of which Dr. Duncan exhibited, in which this lesion existed in an equal degree to that upon the table, and yet there was no pulmonary apoplexy. In a second instance, free regurgitation through the mitral orifice, producing pulmonary engorgement, was accompanied by apoplectic results, but in an opposite way, showing that it was the congestion of the lung rather than the augmented force of the right ventricle propelling the blood that was the cause of the lesion. The existence of pulmonary apoplexy was not suspected in this case. The only thing that could have suggested the idea was the hemoptysis. But the character of the hemorrhage did not correspond with what has been usually observed in pulmonary apoplexy, while it closely resembled that sometimes met with in pneumonia. Coupling this fact with the complete absence of hemoptysis occasionally noticed in pulmonary apoplexy, Dr. Duncan believed that the hemorrhage in this case was connected with the pneumonia rather than with the apoplexy. There was nothing in the character of the bruit which had been heard at the apex of the heart inconsistent with the notion of recent endocarditis, although the *post mortem* examination showed that it was due to a lesion of old standing—a point which could only have been cleared up by a more accurate history of the earlier course of the case.

Looking at the specimen one might be led to imagine from the small size of the mitral orifice that regurgitation was impossible, and that the bruit which was heard during life must have accompanied the second sound, and not the first. But, notwithstanding the narrowing, regurgitation was evidently possible from the imperfect manner in which the opening was closed when the lips were pressed together, and the small quantity of blood which would be forced back during the ventricular systole accurately corresponded with the short murmur which replaced the first sound. Dr. Duncan does not believe that a murmur is commonly produced by obstructive disease of the mitral orifice, because usually the

current of blood is not passed through with sufficient rapidity and force to generate sound; but in this instance he thought such a thing was possible, in consequence of the hypertrophied condition of the left auricle, and the roughness of the deposit on the auricular aspect of the valve, which led him to believe that part of the morbid sound of a rougher character occurring in the middle of the murmur corresponded to the forcible passage of the blood from the auricle in the ventricle.—*March* 25, 1865.

Aneurism of the Aorta.—Dr. Banks said, the man from whose body the specimens that he presented to the society were taken came under his notice on the 16th of march, 1864. He had been for a short time in Sir Patrick Dun's Hospital, under the care of Dr. Kennedy, and had also been in Mercer's Hospital, under the care of Dr. Moore, who, in a paper on the diagnosis and treatment of thoracic aneurism in the *Quarterly Journal* of May, 1864, had briefly recorded the condition of this man when he first came under his notice. He was then forty-four years of age, and was in his forty-sixth year when he died. When Dr. Moore saw him "he was suffering from neuralgic pains over the top of the sternum, and from a troublesome cough; and also from dysphagia, which has disappeared. He complained of tightness of the skin of the left half of the face, of tingling sensations of the same half, and of intense heat of both ears at times. There was ptosis of the left eyelid, and drooping of the left angle of the mouth. The left pupil was more contracted than the right, and a herpetic eruption covered the left half of the upper lip and chin, and other patches were present over the top of the chest and shoulders. The superficial veins over the upper part of the chest were remarkable; and a prominent tumour extended from the right clavicular articulation across the sternum for more than an inch under the left clavicle, over which tumour a second centre of pulsation could be felt. The left radial pulse was indistinct, and the respiration was especially feeble over the left lung. In the month of May last he first had an attack of epistaxis, which gave him relief; and in October and November it returned again. At the end of this month the semi-ptosis of the left lid, deformity of the left angle of the mouth, herpetic eruption, ringing tracheal cough, partial aphonia, and visible tumour still were present, and the epistaxis had returned; but the contraction of the pupil, the tightness of the muscles of the face, and the heat of the ears had disappeared, at least to a great extent."

On the 19th of January last I examined this patient, when the following changes had taken place:—There was no perceptible difference in the size of either pupil; the tightness of the muscles of the left half of the face had almost disappeared, as had also the heat of the ears; the tumour was not so prominent; the greatest prominence still existed over the junction of the first and second rib with the sternum, on the right side; but the pulsation over the tumour was still very decided. The radial

pulses were nearly equable, nor was the cough so distressing; the dysphagia had not returned. These remissions have not occurred for the first time in this case, as the patient tells me that in Autumn, 1861, while in Sir Patrick Dun's Hospital, under Dr. Henry Kennedy, he suffered from difficulty of swallowing and respiration; and that these distressing symptoms were then relieved by the appearance of a large tumour, soft and pulsating, which suddenly appeared at the top of the chest, to the left side. At this time he lost his voice, which was restored to him gradually as the external tumour lessened, which it did in a month; the greatest prominence remaining on the right side.

Four days before this man's admission into the Whitworth Hospital he was seized with severe headache and giddiness, and his articulation became so imperfect that he could scarcely be understood. When he came into the hospital there was still some difficulty of articulation, and his mental powers were evidently very imperfect; his memory was quite gone.

On being asked his age, he stated that he was twenty-four, his real age being forty-six. There was some slight paralysis of the right side of the body, and also of the right side of the face. He was, however, able to walk into the hospital; but on the second or third day after his admission he completely lost all power of motion of the right side, and there was also a manifest diminution of sensibility. On examining his chest, a tumour was found, small in size, but of extreme hardness; it was prominent, and occupied the upper part of the sternum, and extended to the right sterno-clavicular articulation. There was a very slight impulse, and a double sound was audible; there was no bruit, but two sounds identical with the ordinary sounds of the heart were perceived. He complained of great pain in the tumour, shooting down the right arm. This was the most marked symptom present. There was not the slightest difference between the radial pulses, nor between the pupils, which were examined repeatedly at this period with much care; there was some herpetic eruption on the chin, and also on the chest, which afterwards quite disappeared. From the 16th of March until the 23rd of May, when he left the hospital, so far as the tumour was concerned there was no change, but the paralytic symptoms gradually disappeared, and he then recovered the power of motion of the right side, and his memory returned. In fact, he seemed completely, so far as the paralytic symptoms were concerned, to have recovered; the only trace of paralysis that remained was of the face, the mouth being drawn, particularly when he smiled, to the left side.

A fortnight after he left hospital, on the return of severe pain in the chest, and a distressing cough, he was again admitted into Sir Patrick Dun's Hospital, where he remained from the 23rd of May to the 5th of September, without undergoing any remarkable change; and was

transferred, on the 5th of September, to the Whitworth Hospital, where he continued until his death. About last November the cough became more severe and paroxysmal in character. A change took place in the tumour; the hard bony case that covered it became gradually absorbed, and two small nipple-like projections, soft and pulsating, made their appearance. The pulse of the right radial artery, which had been becoming smaller gradually, was quite imperceptible at this period, and so continued to the last moment of life. A slight difference was observed in the size of the pupils at this period, the right being the larger; the difference became gradually less and less up to his death. The growth of the tumour was slow. The only complaint he made was of pain in the tumour, and shooting down the right arm; there was no dyspnea, no dysphagia, and, in short, there was a less amount of suffering than was usually met with in similar cases.

On the night of the 21st of March he had three severe fits of coughing, and great difficulty of breathing; so much so, that the patients in the ward thought he was dying; and the next morning the tumour, which had been in a very quiescent state for a considerable period, had increased from the day before to nearly double its original size; and it increased, not so much in prominence, as in the extent of the base. For the first time, on the 22nd, a distinct stridor—unaccompanied with dysphonia—was observed. Up to this period there was no suffering from dysphagia, but now he could only take food in a fluid form; there was no difference in the intensity of the respiratory murmur in either lung. After these severe fits of coughing he could no longer lie down; and during the last few days of his life he was obliged to sit upright. He had a short attack of delirium after one of these paroxysms, but was quite tranquil for the last two days of his life. On the 28th he was suddenly attacked with severe cough and dyspnea, became pale, then livid, and covered with cold sweat, and after two or three of these attacks he died.

On making a *post mortem* examination, the arachnoid was found slightly thickened and opaque, and a slight amount of subarachnoid effusion was found; but what was particularly interesting was, that the left hemisphere of the brain was smaller than the right, and a small depression or cicatrix existed on its surface on the inner and anterior part of the anterior lobe; small atheromatous deposits could be seen on both internal carotid arteries; the left carotid was impervious from its origin in the aneurism to its bifurcation.

On opening the chest, and removing the whole contents of the thorax, he found a spherical-shaped tumour, which sprang from the upper part of the transverse portion of the aorta; it measured sixteen inches in circumference. Neither the ascending nor the descending aorta seemed to be altered in their calibre; the tumour separated the vessels at each side, which arise from the aortic arch, to a great extent; the trachea was

completely flattened and arched, so as—over the most projecting part of the tumour—to have become convex posteriorly.

There was so much pressure exercised upon the trachea, that it was strange that the patient did not suffer more and earlier from difficulty of breathing than he did. The recurrent, pneumogastric and phrenic nerves could be traced, and no extraordinary pressure seemed to have been exercised on them. The impulse of the heart and its sounds were always feeble, but there was no abnormal sound; the heart was small, but healthy, with the exception of some little calcareous deposit about the semilunar valves, but it did not seem to have affected the function of the valves.

The attention of the society was directed to an interesting point connected with this case. The lungs were unusually dark, as also were the glands about the roots; at each apex there were small crude tubercles, and in both lungs several small cavities existed.

Dr. Banks considered the case was one of much interest, and it was a great satisfaction to him to be able to trace it, by Dr. Moore's very accurate report, from a comparatively early period. How long the disease existed it was not easy to ascertain; the earliest observation dates from 1861, when the case first came under Dr. Henry Kennedy's notice. The man was never very clear or very precise in his statements, so that no accurate knowledge of the early history of the case could be acquired; but it was interesting to observe the extraordinary remissions which occurred, according to the recorded history of the case. That this disease must have stood still repeatedly, and that the tumour must have at times altered its course, was clear from the fact of the left radial pulse having almost disappeared; and subsequently, there being no interference with the left, the right becoming almost obliterated. Another extraordinary fact was, the extreme rapidity with which the tumour increased in one night, in consequence of the frightful attacks of paroxysmal cough.—*April* 1, 1865.

Aneurism of the Aorta.—Dr. Minchin communicated the following case:—

E. B., a strong, healthy-looking woman, aged forty-four years, was admitted into the hospital of the North Union, under my care, on the 3rd of January, 1865, with a large pulsating tumour occupying the anterior part of the neck. On the day of her admission she stated, that she first perceived it about two or three months previously. The account which she gave of its origin was very vague and unsatisfactory; indeed, all that could be ascertained amounted to this, that she had laboured under cough and dyspnea for some time; that the tumour appeared to be in some way connected with these symptoms, and that she had been in the Whitworth Hospital for a short time in the early part of the last

Winter. On making inquiry at that institution, I was enabled to ascertain the following particulars:—Admitted into the Whitworth Hospital on the 1st of August, 1864, complaining of slight orthopnea, which had continued for four months; at that time the anterior part of the neck was occupied by a tumour, which extended transversely to about an inch beyond the sterno-clavicular joint at each side, but did not form any great prominence anteriorly; it was distinctly pulsatile; no murmur was audible. She was discharged on the 11th of August.

When I first saw the case, in January, the tumour extended vertically from the lower border of the larynx to about an inch and a half below the upper border of the sternum; transversely from the middle of one clavicle to the corresponding part of the other; it formed a remarkable protuberance anteriorly, presenting in this direction a smooth rounded prominence, on which the chin of the patient rested in the semi-recumbent posture, which she usually maintained. To the hand applied over the surface of the tumour a strong impulse was communicated at each systole of the heart; on applying the stethoscope, a distinct bruit was audible. The pulse in the right radial artery was a little smaller than that of the left, and had a thrilling vibratory feel, which was not present in the vessel at the left wrist. Vesicular murmur was audible throughout the chest; no abnormal sound in the cardiac region; the heart's action was perfectly tranquil, eighty-six per minute; no venous turgescence in any part; no dropsy; very slight hoarseness, hardly amounting to dysphonia; no dysphagia whatever; occasional cough, accompanied with scanty mucous expectoration; some degree of orthopnea; respiration difficult in the supine posture, but tolerably free while she lay on either side, or when the body was raised to a half-sitting position; on sitting upright the breathing became perfectly easy.

For the next two months no new symptom was observed; the cough had become very much alleviated, and little or no distress was complained of. On the first of March part of the anterior wall of the tumour corresponding to the space between the sterno-thyroid muscles was observed to be growing thinner, and at this part a small secondary tumour projected, the size of a large almond; its surface was smooth and shining, but not discoloured. It continued gradually to enlarge until, on the 18th, it had attained the size of a plum, of a dark purplish-red colour, tense, extremely tender to the touch, and appearing as if it would burst upon a very slight exertion. On the evening of the 19th several minute openings formed in the skin which covered this globular projection, and blood and serum commenced to trickle from it rather freely.

March 27.—Some smart hemorrhages have taken place from time to time; the surface of the central tumour has a sloughy appearance, not very unlike an anthrax; several openings have formed, each of them large enough to admit a goose quill.

28th—An opening as large as a sixpence has formed at the lower part of the circular sloughy surface; this opening is firmly plugged during each systole, but the plug is loosened during the heart's diastole, so as to admit a trickling of blood to take place. The patient has lost between twelve and sixteen ounces of blood since yesterday, judging from the appearance of the bedclothes. Pulse 98, soft; countenance pale, not anxious; decubitus nearly supine.

29th.—Lost nearly a pint of blood since last report. A circular piece of sloughy integument has separated, leaving an opening bounded by a well-defined ulcerated margin; into this opening a firm fibrinous coagulum is pressed forward so as to plug it up with remarkably accuracy; so closely is it fitted against the circumference of the opening, which is fully as large as a crown piece, that very little blood escapes at each diastole, and none whatever during the systole. I was sent for again at 6 p.m., and found that profuse hemorrhage had occurred. The attendant showed me half a basinful of blood, in addition to which the bedclothes and the floor were quite saturated. I found the patient lying on her back; countenance extremely pale; no anxiety; no incoherence; pulse 104, very small, but regular; intense thirst was complained of, but no other uneasiness.

On the next morning, at about 8 o'clock, the coagulum became suddenly displaced, and was shot through the opening to which it had applied itself; it was projected with considerable force, and followed by a large gush of blood, which was immediately fatal.

Dr. Minchin, on exhibiting the morbid specimen which had been removed from the body, remarked, that the almost complete immunity from suffering which the patient had enjoyed was to be explained by the fact that the aneurismal sac, during the progress of its growth, exerted no injurious pressure on any important organ. The point whence the aneurism had sprung was the transverse portion of the aortic arch, between the origins of the arteria innominata and the left carotid; from this point the tumour enlarged gradually upwards and forwards.

In making its way towards the anterior part of the neck (where the chief part of its bulk was situated while the case was under Dr. Minchin's care), the pressure of the dilated vessel had caused the absorption of a portion of the upper edge of the sternum, and had also induced a very considerable relaxation of the sterno-clavicular joint at either side. The tumour presented a very remarkable flatness at its posterior aspect. The œsophagus, trachea, eighth pair of nerves, and thoracic duct had not suffered any appreciable compression. The lungs were quite healthy; the heart was small, healthy, and firmly contracted; the fibrinous mass which had, by its pressure against the anterior wall, retarded in some degree the fatal issue of the case, was fully as large as a man's closed fist, and was exhibited to the society.—*April* 1, 1865.

Disease of the Elbow Joint.—Mr. Croly exhibited a drawing and specimen of ulceration of the cartilages of the elbow joint, removed by resection. The patient, a man aged fifty-four, was admitted into the City of Dublin Hospital under his care several months ago. A large ulcer existed in front of the joint; and there was a sinus, on introducing a probe into which, diseased bone could be felt. The destructive process, however, seemed to be limited to the joint, and there was no thickening of the periosteum over the end of the humerus. On pressing the radius and ulna against the humerus, the man complained of pain, but moderate extension caused no uneasiness. He excised the joint by making a single long incision, and turning out the ends of the bones. The cartilage was loosened from the capitulum of the humerus, and on raising it up the bone was seen superficially ulcerated; a thin slice of it was removed, and the osseous tissue thus exposed was found to be perfectly healthy and firm. The cartilages of the ulna and radius were similarly affected, being in some places detached, in others removed, and the bone being slightly ulcerated. Since the operation, the case had proceeded most favourably; the night sweats, and other hectic symptoms which had existed, having entirely ceased, and the patient had regained strength.—*April* 1, 1865.

Fracture of the Ribs.—Professor Macnamara said, the specimens which he now presented to the society were taken from the body of a man who fell about forty feet, from a house in course of erection, on Wednesday last, and was brought at once into the Meath Hospital. He presented the aspect of a person suffering from internal hemorrhage; and a very slight examination was sufficient to show that a number of the ribs were fractured. There was a very slight amount of emphysema, so slight that it entirely escaped observation, and even at the *post mortem* examination it was scarcely noticed. The man died soon after admission; and on a *post mortem* examination they found, on opening the thorax, that the right pleural cavity contained about forty ounces of blood. Eight ribs were fractured at the junction of their anterior and middle third—from the second down to the ninth, inclusive—and three others, close to their vertebral articulations. The intercostal arteries were lacerated, and the ribs projected into the pulmonary tissue, producing a large rent.

The most interesting circumstance, however, connected with the examination was, that the liver was lacerated, and yet there was no hemorrhage into the abdomen; on the anterior surface there was a slight fissure, but the under surface was rather extensively torn, and yet there was not a drop of blood found in the peritoneal cavity. He was aware, from a case that he had an opportunity of examining some years ago, that the liver could be extensively ruptured, and great quantities of blood poured out, and that after the reception of the injury the patient

could walk home and live for twenty-four hours, but he was perfectly unprepared to meet a case such as this was, of rupture of the liver without the effusion of blood.—*April* 1, 1865.

Pulmonary Apoplexy.—Dr. Duncan said, that on that day week he brought under the notice of the society a specimen of pulmonary apoplexy, associated with disease of the heart, hemoptysis having been present during the progress of the case. The blood was scanty in amount, of a bright florid colour, and intimately mixed with air globules; it seemed to come from the capillary vessels of the lungs. The hemorrhage did not present what he believed to be the usual characters of the hemoptysis noticed in pulmonary apoplexy, but rather resembled that often associated with pure pneumonia, a condition which was present in the case.

In the instance to which he now directed the attention of the society, hemoptysis also was present, but the blood differed in colour and character. The case was one of phthisis occurring in a middle aged woman, and of three years' duration. She came into hospital on the 4th of March, suffering from hemoptysis, and an examination of the chest showed that vomicæ existed in both lungs. The hemorrhage was considerable in amount, the blood being of a dark colour, and seemingly mixed with purulent matter; it did not, however, gush out in large quantity, but seemed to be a general oozing from the mucous surface. She sank rapidly, exhausted by the bleeding.

Upon examination after death, large abscesses were found in both lungs, and one of them contained a large coagulum of blood; but, notwithstanding a very careful examination, its source could not be traced to any large vessel—confirming the opinion that had been formed during the progress of the case, that the bleeding was not due to the giving way of a vessel of magnitude, but that the cavity of an abscess gradually filled with blood, which became mixed with the purulent secretion.—*April* 1, 1865.

Fatty Degeneration of the Heart.—Dr. Jennings detailed the particulars of a case of fatty heart, with general adhesion of the pericardium, and sudden death from pulmonary apoplexy. John Murray, aged forty, a man of unusually large and powerful frame, and who had some years since suffered from an attack of acute bronchitis, with congestion of the lungs, applied for admission into the Infirmary of the South Dublin Union on the 18th of March, complaining of cough, general malaise, and debility. So robust, however, was his appearance, so meagre his own description of his sufferings, and so ill marked (at first sight) the physical symptoms of any severe illness, that his application had almost been refused, when, on feeling his pulse I was startled to find it singularly weak, irregular, and fluttering. On examining his chest extensive dulness

was found to exist on the right side, particularly in the infra-mammary region; as also (but in a less marked degree), on the opposite side, where loud râles were generally audible. The heart sounds were singularly weak and muffled, but yet distinguishable, and unattended with bruit. The breathing was but slightly embarrassed, and he was able to maintain the recumbent posture without distress. His cough was accompanied with free expectoration of brown-coloured mucus.

In the course of the following week, under the use of stimulants, and extensive counter irritation, the dulness sensibly diminished, and the character of the pulse considerably improved, when suddenly, during the night of 1st April, he was attacked by severe hemoptysis, from the effects of which he rallied so imperfectly as to preclude all hope of ultimate recovery. On the 3rd of April a second and more profuse hemorrhage almost instantly terminated his existence. The blood was of a bright red colour, and formed a firm coagulum.

The autopsy disclosed the following condition of parts:—The vessels of the brain were completely empty, and its tissue very much softened, so much so that considerable difficulty was experienced in removing it entire: this softening was best marked on the cerebellar lobes. The anterior mediastinum contained much adipose deposit; and on withdrawing the margin of the left lung, which was emphysematous, and overlapped the pericardium, the latter was found covered by a thick coating of fat. On attempting to raise the pericardium, it was found universally adherent to the heart, and required considerable force to effect its detachment. The surface of the heart was also covered with fat, several lines in thickness, and which dipped down at intervals into its muscular structure. The organ itself was strikingly small, especially when the stature and muscular development of the patient were taken into consideration; it was also soft and flaccid, and the thickness of the left ventricular walls in particular were under the average; the valves were healthy. The right lung was intimately connected with the thorax by old adhesions, and the pleura was much thickened; morbid deposits existed in the aorta. Both lungs (but especially the right) were gorged with blood, affording a good example of diffused pulmonary apoplexy.

Dr. Jennings observed, that the immediate cause of death in this case was the infiltration of blood throughout the pulmonary tissue, induced chiefly, no doubt, by the atrophied and degenerated condition of the heart, but favoured also by the propulsive power of the already enfeebled organ being further impeded by the pericardial adhesion.

While all must admit the truth of what had been written regarding the occasional difficulty of clearly diagnosing the existence of fatty and weak hearts, yet it seems strange that that organ could have suffered from such extensive disease without a better marked expression of characteristic symptoms—such as great dyspnea, syncope, temporary paralysis, &c.,

from none of which had the man ever suffered. The only physical symptom during life was the feeble circulation; for, though his respiration had been somewhat embarrassed, yet it did not by any means amount to actual distress, and he had always been able to remain in the recumbent position. On the subject of the relation, as regarded cause and effect, between the adhesion of the pericardium and the atrophy of the heart, he was strongly inclined to consider the pericardial inflammation as the primary affection. The case was interesting for several reasons:—1st, as an unusually well marked specimen of double pulmonary apoplexy; 2nd, as illustrating the truth of Dr. Watson's teaching, that we are not always to estimate by the existence or extent of pulmonary apoplexy, abnormally violent action of the *right* ventricle, but rather the inability from disease on the part of the *left* to propel its contents; and, lastly, as corroborating (if corroboration were necessary) the statement of Dr. Stokes, that those physicians go at least too far, who assert "that general adhesion of the pericardium invariably induces hypertrophy of the heart, and generally hypertrophy with dilatation;" for here, where there existed a condition of the heart most favourable for the development of such a state of parts—where hypertrophy with dilatation might most naturally have been expected, the organ was unusually small; and in the present case it really seemed as if the support derived during life from the adhesion of the pericardium, was the very cause which prevented the expansion of its chambers.—*April* 8, 1865.

Ulceration of the Intestines.—Dr. Duncan said the identity or non-identity of typhus and typhoid fever is a question in pathology not yet fully settled. I believe, when we meet with well-marked and characteristic cases of typhus and typhoid, the phenomena are so different, that there can be little difficulty in arriving at the conclusion that they are distinct diseases; but every case we meet with is not attended with the characteristic symptoms that properly belong to it, and then we are driven to the necessity of supposing that either the symptoms of two different diseases are united in one case, or else that the two fevers are really identical, and that the differences in the symptoms commonly observed depend on some accidental circumstance. Every case, therefore, which throws light on this subject ought to be brought before the profession.

About this time twelve months there was a man in the Adelaide Hospital labouring under well-marked typhoid fever; the symptoms, progress, and duration of the case established this beyond doubt. He went out convalescent, and within a week returned, presenting an entirely different set of symptoms, closely corresponding with what is observed in typhus as distinct from typhoid fever. If the two fevers are identical, and the latter attack only a relapse or renewal of the original disease, how was it that on his re-admission the patient presented symptoms so essentially

different from those exhibited at first when he was labouring under typhoid fever? If the two forms are different, it is easy to understand that when covalescence took place the man might, from exposure to the second form of fever, catch a new infection, and come back to the hospital labouring under it. This was what actually occurred. Lying in the next bed to him at the time of his original illness there was a patient in typhus, presenting a well-marked contrast in all its phenomena to those under which he laboured; and it is reasonable to suppose that, when the violence of his own fever subsided, he took, by proximity, the infection from his neighbour. The specimen I have now to show you is exactly the converse of this. It occurred in a woman, admitted to the Adelaide Hospital on the 1st of April. She had been an inmate of Cork-street Fever Hospital, where she had a very severe attack of typhus, lasting about three weeks, requiring the free use of wine and stimulants. From this she was transferred to the House of Recovery; and after remaining about a week at home she was admitted into the Adelaide. On her admission she had not the characteristic symptoms of typhus; she wanted the peculiar depressed look that so significantly marks that affection. The intellect was clear; there was no delirium; the tongue was clean, and there was an absence of that prostration and depression of the nervous system that is so characteristic of typhus fever. She had an eruption of a rose colour over the abdomen, but more abundant than what we usually meet with in typhoid fever; and, instead of being confined to the abdomen or chest, as it generally is in this disease, she had spots on the forearm. It was distinctly a rose-coloured rash, disappeared upon pressure, and came out in successive crops on the surface; all which point to typhoid fever as their source. At first some of these spots were ambiguous in their character; they seemed vesicular, and suggested to us the idea of its possibly being an anomalous case of small-pox not yet fully developed. This idea did not turn out to be well founded; there was no eruption on the face, and, with the exception of one or two slightly vesicular spots which did not enlarge, the rest of the eruption was distinctly measly in its character. The patient, notwithstanding these resemblances, wanted some of the symptoms of typhoid fever; there was no tenderness in the ileo-cecal region, and no diarrhea. On the 4th instant, seven days after her admission, we observed that her mind began to be astray; but the delirium was totally different from the delirium which we meet with in typhus. Instead of being the muttering, low, depressed delirium, it was more active and excited, and the woman was with difficulty kept in bed. Notwithstanding the free administration of stimulants, she sank upon the night of the 6th.

We were anxious to ascertain the state of facts about the ileo-cecal region, as upon this would depend the true estimate of the nature of the affection.

On examining the body, we found two patches in the alimentary canal

in which Peyer's glands had sloughed away, leaving the muscular coat underneath smooth and bare. I think, then, that in this case, notwithstanding the absence of many symptoms usually esteemed characteristic, such as diarrhea of a peculiar character (the feces in the intestines did not correspond with those of typhoid fever), and notwithstanding the absence of tenderness in the ileo-cecal region, we are justified in considering it as a case of typhoid fever—not a relapse of the original typhus, but a fresh infection of a different form.—*April* 8, 1865.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE COLLEGE OF PHYSICIANS.

Dr. Beatty, President.

Dr. Halahan *read the following paper on Pneumonia.*—In the first year of the existence of the Medical Society of the College of Physicians I may well preface the remarks I am about to lay before you by wishing the new-born child a long and prosperous life, hoping that its labours may be successful and instructive, and an ornament to that college of which it may fairly be said to be the offspring. May the phœnix which has arisen from the ashes of the dead society soar with stronger wings towards the sun of science, and add another to the many proofs of the skill and research of the Irish School of Medicine. To proceed, however, to the immediate subject of my paper. I propose to lay before you three cases, lately attended, of inflammation of the lungs, which I was enabled to bring to a successful termination. My object in calling your attention to them is not with the desire of establishing any new theory or of suggesting any novel practice, but solely to inform you how a certain treatment has succeeded in the particular cases to which I am about to refer. The treatment is certainly not new, as I became acquainted with it when the resident of the Meath Hospital, more particularly on my rounds with the late John James Parr, of whose skill and judgment the greatest light of Irish medical science entertained the highest opinion; a treatment afterwards confirmed in my mind by its adoption by the late lamented Dr. Robert Mayne, under whose instruction I had the honour and privilege of studying disease for six years. There are few subjects on which a greater difference of opinion exists than upon the treatment of disease; yet differ as we may, and think what we can, and say what we will about the different modes in which we may treat the same disease, on one point we are all agreed—that our greatest energies and best exertions are to be put forth to save life; and I am fully convinced that in the majority of cases the true disciple of medicine acts on no other principle. It would be well for the profession if we would grant to

another the charity which all individually ask for themselves—the admission that he has done what he *has* done from the noblest motives. That if one of our brethren fail where we think (perhaps conceitedly) that we would have succeeded, we should rather pity than condemn the unsuccessful practitioner, remembering that failure is not confined to the tyros of the profession, but that "that fell sergeant death" is often more than a match for the most experienced and trusted members of our great profession; did such a feeling exist among us, did we regard each other with a more friendly and trustful sympathy, did we help each other by discarding our miserable professional jealousies, and care more for the general credit and honour of the profession than for our own special advancement, we would elicit from the public not merely a respect based upon the consciousness of their dependence on our efforts, but one unalloyed by any feeling of distrust, inspired (not unnaturally) by the startling differences so often existing between men of confessedly equal professional standing. With these remarks I beg to lay before you the outlines of the cases to which I have already referred, not making mention of any particular medical, but merely giving you the stimulating treatment, as I believe in it depends our entire success; that it matters little whether we blister, give mercury, antimony, or any or all the medicines in the Pharmacopœia, if we support our patient sufficiently to bear him through; and it signifies not what disease we have to deal with if we fail to support our patient's strength fully our efforts will be of little avail.

The first case was a gentleman labouring under the disease in the right lung; pulse 130; ordered beef-tea; port wine twelve ounces, one ounce to be given during night and day every second hour if awake; on the second and third days the wine was increased to eighteen ounces, and at night, about ten o'clock, a good strong tumbler of punch. On the fourth day the pulse was reduced to 80; on this and two following days received twelve ounces of wine; sixth, seventh, eighth, ninth, and tenth days, ten ounces. He was blistered, and upon the first visit was ordered a little grey powder, with James', together with a mixture containing carbonate of ammonia, syrup of smilax, tincture of henbane, and camphor mixture.

The second case was a lady; right lung affected; pulse 120; ordered beef-tea; ten ounces of port wine to be given in the twenty-four hours; the same amount on second and third days; pulse 90 on third day; from the fourth to the sixteenth day eight ounces daily, together with good nourishing diet. She had mustard poultices frequently applied to her chest, and took the carbonate of ammonia mixture.

The third case was a lady, and it was late in the evening when I first saw her; the right lung was the one affected; pulse 140; ordered her to have at once a strong tumbler of punch, and to get ten ounces of wine every second hour during the night if not asleep; on second, third, and

fourth days twenty ounces of wine, together with strong beef-tea; on these evenings she received the punch and chicken broth. On the fourth day the pulse was 80; from this to the twelfth day the wine varied in quantity, but never less than twelve ounces daily. She had repeated mustard poultices applied, and took a little blue pill, James' powder, and extract of henbane every three hours for three days. It did not affect the gums. She, at the same time, took the carbonate of ammonia mixture, which she continued after leaving off the pills.

Having detailed to you these cases, I beg to make some remarks upon the treatment which resulted in a favourable issue. There are, as we all know, two great theories afloat as to the manner in which disease should be treated, put into plain English—one strives to *wrestle* with the disease, the other, with the greater skill, to parry its thrusts, and eventually wear it out. The former treatment is not inaptly (and I believe often not unfairly) represented in the allegory of a great French writer; he compares the physician who rushes head foremost at the malady he was called in to cure, to a blind man armed with a club; before him lay disease and nature; the blind man strikes out boldly before him; if he smites the disease he kills it, but if he unfortunately strikes nature he as indubitably slays her. The first system is the Bonaparte of medicine, who is overthrown in a Moscow collapse; the second the Wellington of the same, who, just as the sun is setting, wins his Waterloo. The first has, undoubtedly, the support of an old and able medical literature, and the recorded practice of ages; but the *success* attendant upon medical exertions during the last quarter of a century is as remarkable as the *failures* which signalized the age which produced the literature and recorded the practice.

The honour rests with our native land, and with this our native city, of having originated a revolution in medical treatment, of which the results, great as they are, are but the earnest of a marvellous future—a revolution which emancipated our profession from the trammels of an authority that had little recommendation but its age, which opened up for them another track than that trodden hardly down by a long line of predecessors. "He fed fevers;" the expression involved the intuition of genius, and the result of profound and experienced thought. What is its meaning? Is it that we should force animal food upon a patient whose stomach revolts against it? The question is unworthy of an answer. It means that we should feed fevers with the food which fever will accept—wine, brandy, stimulants of all kinds, to any extent which the patient will receive, or may be forced to accept. I have no doubt that in this lies the true secret of successful practice, not only in fever but in all diseases of an inflammatory type. Let us watch the disease, ready to meet the possible complications which may arise, keeping a special watch on the organs or functions most threatened. Let us act like a wary general,

who in making his approaches to a besieged town, he allows not his attention to be drawn off for one moment from the dangerous points from which at any moment the enemy may sally, but all the while he keeps his trenches full of armed men, ready at once for onslaught or defence. The trenches which we medical strategists attempt to occupy, in our attack upon the fortress of disease, are the vital organs from which spring forth the strength and life of men; and the stout soldiers which in our peril we summon to defend them are the whole army of stimulants, from the second letter of the alphabet to the last but three. Permit me to notice an objection against the stimulating treatment often urged by practitioners of the drench-and-drain school of medicine; they tell us that stimulants give but an artificial and transient strength. Now the expression *artificial strength* is a contradiction in terms; it is either *strength* or it is not; and a *transient* strength may be quite enough for *transient* purposes, which is after all the great purpose we have in view in tiding a patient over an attack of disease. There is in him a certain mysterious influence, deadly in its intentions, wasting in its assaults; it has, however, but a certain course to run, often the shorter in proportion to its virulency. Surely we are not astray in serving a *transient* purpose if we succeed in making the patient able to bear its blows, and to weather and wear it out; nor need we trouble ourselves about the *artificial* character of the strength our stimulants impart if it is enough to serve the purpose we have at heart—the saving of our patient's life. In connexion with the above, and in conclusion, I wish to draw your attention to one special point in the regard to which I believe the full success of the stimulating treatment may often depend—I mean the watching of the patient closely throughout the night, and the steady continuance of the treatment during those hours when we are most likely to neglect it or think it unncessary, unless sleep, "nature's soft nurse," renders interference of any sort unnecessary; we should be, however, specially cautious in watching the sleeper, availing ourselves of waking moments to pour in the stimulants; the neglect of one night, the stoppage for so many hours of invigorating treatment, and those hours confessedly the most depressing of the twenty-four, may undo all the efforts, however strenously sustained, of watchful and anxious days. There can be little doubt that in the great majority of cases men die between midnight and dawn; connecting this fact with another—that the midnight hours are those, unnaturally enough, the patient is most neglected, we can hardly fail in perceiving a connexion of cause and effect between them.

It would ill become me to close a paper which refers, however crudely, to the stimulating treatment of disease, without expressing the reverence and respect which I feel towards the memory of that great man, who in that hour when fever stalked throughout the land alone perceived the true mode of dealing with the pest—"Magna est veritas et prævalebit." In

that age (perhaps after all not very distant) when medicine shall have reached the position of a fixed and certain science, no name shall stand forth more illustriously amongst those who were foremost in effecting this great result than that of Dr. Robert James Graves.

Dr. Hayden *on the Rhythm of the Heart's Action.*—At the outset I beg to observe, what, no doubt, has been likewise the experience of others engaged in a similar inquiry, that in prosecuting the study of cardiac pathology I have found my progress much impeded by the want of a clear and precise definition of the rhythm of the heart, and of an accurate appreciation of the relative position in time of the several phenomena which, collectively, constitute a cycle of the heart's action.

The determination of the gravity or diagnostic value of morbid sounds associated with the movements of the heart, depends, not so much upon their quality, or the site at which they are generated, as upon the cause of their production, and the interpretation of which they are susceptible in relation to the flux or reflux of the blood through the auriculo-ventricular and arterial orifices.

The first step in an inquiry of this nature must therefore be, to endeavour to determine the representative value of the normal sounds and movements of the heart, and to group them in the natural order, on the basis of the vital and physical changes which they involve, in such a manner that the mind may at once, and without effort, apprehend the members of each group, their causes, and relationship to one another.

With this view it is that I venture to submit to the society the result of my observations in a department in which so much has been already done, but in which, as it appears to me, much still remains to be learned.

That great discrepancy exists among writers as regards the order and relative duration of the intrinsic movements, and even the sensible phenomena of the heart's action, a few references will suffice to show.

Cruveilhier says the duration of the contraction of the ventricles is double that of their dilatation; and that the latter was "sudden and instantaneous," and attended with great force, in a case of ectopia cordis observed by him in an infant.

Williams divides the whole period of a single pulsation of the heart into five parts, of which two are occupied by the ventricular systole, one by the ventricular diastole (during which the second sound occurs) and the two remaining by the period of rest.

Bellingham says "the systole of the ventricles occupies about one-half the period of an entire beat of the heart—that is, it is as long as the diastole and the period of repose taken together, and is double the length of the ventricular diastole."

Thus these two writers regard the ventricular systole as occupying

two-fifths and one-half the period of a complete action of the heart respectively; whilst one of them estimates the pause as covering two-fifths, and the other one-fourth of that period; but both agree in considering the ventricular diastole, as being only one-half the length of the ventricular systole; and Bellingham says the second sound is synchronous with it, and that "from the termination of the diastole of the ventricles (*i.e.* of the second sound with which it coincides), until the commencement of the next systole, the ventricles are in a state of perfect repose, their cavities remaining full but not distended."

According to Messrs. Barth and Roger, if the whole period be divided into six equal parts, the systole would occupy about two; the short period of repose, that is the post systolic pause, one; the diastole, one; and the long period of repose about two.

Lænnec says that a little more than one-fourth of the whole period is occupied by the contraction of the auricles, to which he attributes the second sound; a little less than one-fourth by the pause, and one-half by the systole of the ventricles; he adds that "every twenty-four hours the ventricles have twelve, and the auricles eighteen hours of quiescence."

Markham assigns to the first sound about two-fifths of the period of a cardiac action; to the second sound about one-half, or rather more; and to the succeeding pause about two-fifths or somewhat less; during this pause the auricular systole and the completion of the ventricular diastole take place; and the second sound, according to him, succeeds the first, without any well-marked intervening pause.

According to Carpenter the whole interval between one beat of the heart and the next may be divided into four parts, of which two correspond to the first sound, one to the second sound, and one to the period of repose.

From the foregoing it is manifest that no settled opinion exists on the subject of the rhythm of the heart, and that consequently original observation is not only invited but absolutely required.

The views which I shall now venture to lay before the society have been arrived at, partly from experiments upon inferior animals, but chiefly from observations on the sick in hospital practice.

As regards the debated question of the cause of the heart's sounds, I will only remark here, that I believe the first sound to be due entirely to sudden tension of the chordæ tendineæ and auriculo-ventricular valves, supplemented by the impulse of the heart, and modified by the force of the impulse, and by the quality of the media through which it is transmitted to the ear, namely, the parietes of the chest, and of the heart itself; that the passage of blood has no share in the production of this sound, beyond the pressure which it exercises upon the ventricular surface of the mitral and tricuspid valves, and the consequent tension of

these and of the chordæ tendineæ; and finally, that morbid murmurs are in no degree kindred to the natural sounds of the heart.

The second sound I hold to be due entirely to sudden closure and tension of the sigmoid valves.

The whole period covered by a single action of the heart is divisible into two parts of unequal length, corresponding to the *ventricular systole*, and the *ventricular diastole;* of this period one-third is occupied by the ventricular systole; and two-thirds by the ventricular diastole, the pulse being at the rate of ninety in the minute. The first sound and the impulse initiate the ventricular systole, and are immediately succeeded by a short period of silence, or a pause, during which the ventricular systole is continued; this pause, which corresponds to the "short pause" of French writers, I propose to distinguish by the title of "systolic pause," as indicating the state of the ventricles during its occurrence; it is of very brief duration—at the normal rate of the heart's action not calculable, but distinctly appreciable by the ear, and is a pause only in the sense that that portion of the ventricular systole which coincides with it is unattended with sound.

The second sound immediately succeeds the systolic pause, and determines its duration; the period of time covered by it is quite incalculable, but belongs to that assigned to the ventricular diastole. It is succeeded by a long pause, which I propose to designate as the "diastolic pause," in contradistinction to the former. This pause corresponds to the interval between the second sound and the first, and at a pulse-rate of ninety occupies a period of one-half a second *minus* the length of the second sound. During this pause the ventricles are undergoing dilatation, and the auricles contraction. There is, therefore, no pause, in the sense of complete absence of movement of any of the chambers of the heart—the so-called pause is a period of *silence*, not one of inaction.

During the period corresponding to the second sound and the diastolic pause, that is, to the ventricular diastole, the auricles are in a state of contraction; this is feeble and of an undulatory character till towards its conclusion, when it becomes quick and energetic, completing the distention of the ventricles, and is immediately succeeded by their contraction. This terminal portion, or acme of the contraction of the auricles I propose to designate the "momentum of the auricular systole," because then the auricles, having discharged a portion of their contents, have acquired their maximum power of contraction, and propel a further volume of blood with increased force and rapidity into the ventricles.

The forced and sudden entrance of blood into the ventricles during the momentum of the auricular systole serves the useful purpose of communicating to the ventricles the stimulus of distention, in response to which they immediately react upon their contents, and thus complete the cycle of the heart's action.

Dr. Gairdner speaks of the "contraction, dilatation, and rest of each of the cavities," thus recognizing a period of "rest" as distinct from dilatation. I cannot admit "rest" in this sense, because I believe that at no period during the active performance of its function is the heart in a state of complete repose, that is, neither of contraction nor of dilatation; much less can I admit with Lænnec that the auricles enjoy eighteen, and the ventricles twelve hours of rest out of twenty-four. The so-called "rest" is an acoustic phenomenon of a negative kind—it is a period of silence during which the systole and the diastole of the ventricles, respectively, is performed without sound or other manifestation of movement perceptible to the auscultator. If the chest of a living animal be quickly laid open, and the pulsating heart brought into view, it will be observed that during the diastolic pause, the auricles, more especially the left, are undergoing a superficial undulatory contractile movement in the direction of the ventricles, which, at the same time, are being gradually distended with blood. Thus, during this pause the "rest" is represented by the contraction of the auricles, and the dilatation of the ventricles. During the first sound and impulse, and the succeeding systolic pause, the ventricles feel firm and rigid to the hand, and relax only on the occurrence of the second sound; the auricles, during the same period, are in a state of maximum distention, manifestly because of the stasis of blood within them consequent upon the occlusion of the auriculo-ventricular passages. The systolic pause, therefore, corresponds to the terminal portion of the ventricular systole, and of the auricular diastole.

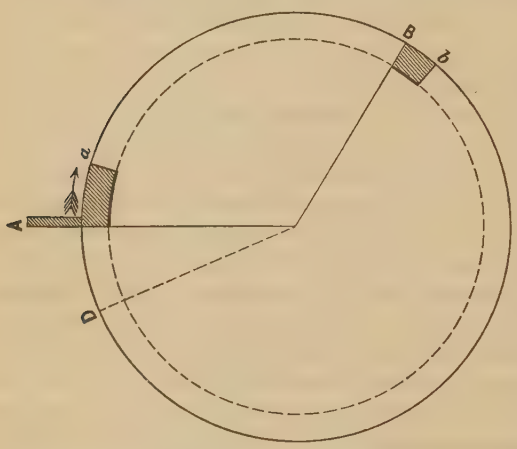
The radial pulse is usually spoken of as succeeding the first sound and impulse of the heart at a short but appreciable interval, as being interposed between the first and second sound, that is, as coinciding with the systolic pause. This is generally, but not universally true. I have found that in proportion as the rate of pulsation is accelerated the radial pulse is postponed, and when the rate amounts to 126 in the minute, the radial pulse exactly coincides with the second sound. I have not as yet had an opportunity of pursuing this enquiry further, but I conclude that, at a still higher rate of pulsation, as, for example, in febrile excitement of the heart, the radial pulse would be found to fall within the period of the diastolic pause.[a]

In regard to the effect of diminished rate of pulsation on the rhythm of the heart, it would appear that the diastolic pause is *relatively*, as well as absolutely prolonged thereby. I have had for some time past, and still have (May, 1865) under observation in hospital, a case of

[a] Since writing this passage I have had an opportunity of supplying the want here indicated. This morning, in the hospital dispensary, I had the opportunity of examining a patient in advanced phthisis, whose pulse was 144. On close examination I found, as I had anticipated from previous experiments, that in this case the radial pulse fell behind the second sound, that is to say, was postponed into the diastolic pause.

permanently slow pulse; it is that of a man aged seventy-five, with œdema of the feet and other symptoms of weak heart. The pulse is perfectly regular, and in the recumbent posture only *thirty* in the minute. The heart's action is equally regular. The sounds are somewhat dull but unattended with murmur. In this case, therefore, the heart pulsates once in every 2″, of which $1\frac{1}{2}$″, less the duration of the second sound, are occupied by the diastolic pause, and the remaining $\frac{1}{2}$″ by the first sound and the systolic pause. At a future meeting of the society I hope to have the pleasure of submitting the application of these views to disease, with illustrative cases.

In the accompanying diagram the circle represents the cycle of phenomena, commencing at the point A, and following the direction indicated by the arrow. The only phenomenon connected with the heart's action which makes itself sensible beyond the chest walls is the impulse; this is represented accordingly by the projecting line A. The impulse is accompanied and likewise succeeded by the first sound, which in the diagram is represented by a coloured space (A to *a*) commencing with and extending beyond the line indicating the impulse.



The first sound is succeeded by the *systolic pause* (dotted line, *a* to B); and, as I have already observed, the duration of this pause is so short as to be separately incalculable by ordinary means when the pulse is at its normal rate of from seventy-five to ninety, but its existence is, nevertheless, readily perceived by the ear. A murmur *succeeding* the first sound, but not connected with the second sound, a phenomenon of not very uncommon occurrence in certain forms of mitral valve regurgitation, occupies the systolic pause.

The first sound, the impulse, and the systolic pause taken together, occupy one-third of the cycle, and are represented in the diagram by the segment from A to B, corresponding to the systole of the ventricles and the diastole of the auricles.

Immediately succeeding the systolic pause we hear the second sound, indicated, likewise, by a coloured space within the circle (B *b*); this sound is of the character of a sharp click, and is followed by a long period of

so-called rest, or rather of silence, which I propose to name the *diastolic pause.* This pause is represented by the dotted curved line (*b* A), and with the preceding second sound occupies two-thirds of the entire cycle, as represented by the segment B to A.

In point of fact, this long or diastolic pause is the only one which is generally recognized, the brief duration of the first or systolic pause having caused it to escape attention. During the continuance of the diastolic pause the ventricles are in a state of diastole and the auricles in a state of systole; it commences with the termination of the second sound, and ends only with the recurrence of the first sound, *i.e.*, the recommencement of the cardiac cycle.

Towards the conclusion of the diastolic pause, the auricles, which had been previously in a state of imperfect contraction, assume an increased vigour, and contract with rapidity and force; this portion of the contractile effort I propose to designate the *momentum of the auricular systole;* the auricles during that period performing a sudden, and, as it were, a spasmodic act of contraction. Immediately the ventricles have received the last charge of blood consequent upon, and resulting from this act of sudden contraction of the auricles, and have thereby acquired the stimulus of distention, which is essential to the contraction of hollow muscular organs, a reaction takes place, the ventricles contract in response to this stimulus, and we have a recurrence of the phenomena previously described. The portion of the diastolic pause corresponding to the momentum of the auricular systole is represented in the diagram by a segment marked off by means of a dotted line (D).

The entire cycle of cardiac action being thus divived into two unequal parts, one (A to B) corresponding to the ventricular systole, and the other (B to A) to the ventricular diastole, we find that the *first* period comprises three distinct phenomena, viz., the first sound, the impulse, and the negative phenomenon, which I designate the systolic pause. The duration of the first sound I have not separately calculated. The impulse of the heart coincides with the first sound, but is not co-extensive with it; the first sound coincides with the impulse and extends beyond it. The systolic pause which succeeds the first sound corresponds with the last period of ventricular contraction.

If we follow the connexion between these phenomena still further, we shall find that when the pulse is at ninety, *i.e.*, when each cycle of cardiac action occupies two-thirds of 1″ the first sound, the impulse, and the systolic pause taken together, correspond exactly to a period of $\frac{1}{4}''$. This it is not difficult to show with the aid of a time-piece beating *quarter seconds.* We shall find, moreover, that during the first sound and the impulse the auriculo-ventricular orifices are closed by the apposition of their valves, and the arterial orifices thrown open by the divarication of the two sets of sigmoid valves, and that during the systolic pause which

immediately follows the first sound, the same valves, both auriculo-ventricular and arterial, are in the preceding condition; the closing of the former valves and the opening of the latter correspond to the impulse and the first sound. The state of the circulation during the ventricular systole is, that the blood is passing from the ventricles into the arteries, the auricles being in a state of distention.

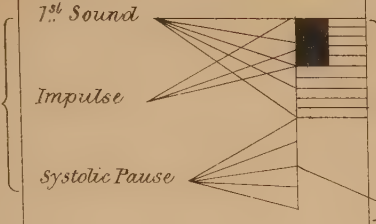
Connected with the ventricular diastole we shall find the following phenomena:—At the commencement of it the second sound, and immediately succeeding this the long or diastolic pause. The duration of the second sound is incalculably short; the diastolic pause is calculable, and when the pulse is at ninety it occupies $\frac{1}{2}''$, *minus* a minute fraction of time corresponding to the second sound. During the second sound the arterial valves are closed, whilst the auriculo-ventricular valves are suddenly thrown open, and during the succeeding pause the arterial valves continue closed and the auriculo-ventricular continue open.

The state of the circulation is, during the second sound, and the next succeeding and greater portion of the diastolic pause the blood is passing from the auricles into the ventricles, and the auricles are contracting feebly; they are performing that kind of undulating contraction of which I have already spoken as being witnessed in the heart of an animal recently killed, a peculiar wave-like movement which travels over the surface of the auricle in the direction of the ventricle. Towards the conclusion of the diastolic pause the auricles are in a state of energetic action, that peculiar and apparently spasmodic contraction, which I designate the *momentum of the auricular systole.*

As to the connexion between the radial pulse and the movements of the heart, it is commonly supposed that the radial pulse succeeds the first sound, and comes between that and the second sound. This, however, is true only when the pulse is at or near its normal rate. When the rate is under 126 the stroke of the radial artery corresponds to the systolic pause; but if the pulse amounts to 126 in the minute it will be found that the beat of the radial artery is shifted back in the order of phenomena, and is now contemporaneous with the second sound. If the heart's action be still further accelerated it will be found that the radial pulse is postponed in the same proportion, and now falls within the period of the diastolic pause.

The subjoined chart will be found to exhibit the connexion and mutual relationship of these several phenomena in more intelligible form.

Phenomena | Sensible Phenomena. | Time. | State of Valves. | State of Circulation & of Auricles.



tricular
rstole.

=¾" Pulse 90.

Closing of Auriculo-ventricular & opening of Arterial Valves

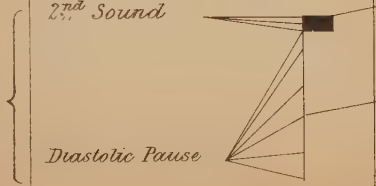
Auriculo-ventricular Valves closed & Arterial Valves open.

Passage of blood from Ventricles into Arteries & distension of Auricles.

Radial pulse, rate being 72.

Radial pulse, rate being 144.

Radial pulse, rate being under 72.



utricular
iastole.

incalculable

½" minus 2nd sound. (Pulse 90)

Closure of Arterial & opening of Auriculo-ventricular Valves.

Arterial Valves closed & Auriculo-ventricular Valves open.

Passage of blood from Auricles into Ventricles, & contraction of Auricles.

Momentum of Auricular Systole.

VOL. XI. No. LXI.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.[a]

TWENTY-SEVENTH ANNUAL SESSION.

Dr. Churchill, President.

New Instrument for Craniotomy.—Dr. Halahan, in exhibiting an instrument he had devised for this operation, made the following remarks:—

Sometimes in the practice of our great profession we are brought into contact with particular conditions of our patient, which require the employment at our hands of instrumentalities from which we naturally shrink, and which nothing short of the most absolute necessity would induce us to use. The absolute necessity lies just in this—that except we employ the means we shrink from our patient will *surely* die; *if* we employ them he or she *may* live. The real difficulty lies in determining *when* we are to act. Without precise examination we may presume the existence of a danger which is only imaginary, or fail observing obstructions which demand instant interference.

Craniotomy is pre-eminently an operation of this kind; and is one which, above all others, requires the consideration of many important points. First, is the fetus alive or dead. Secondly, if alive, is there possibility of preserving the life—possibility of preserving it without endangering the life of the mother. The preservation of that is of course the paramount obligation on us. She is to be saved at all hazards. But the true obstetrician will feel that he has done but half his work if he has slacked a single effort to save both. In operating it is quite plain that a great deal depends upon the instruments employed; our object should be to use as few as possible, and to render the operation as speedy and as simple as we can. In all cases of craniotomy we are at present obliged to resort to the use of at least two (which I believe fail in satisfying these intentions), the perforator and crotchet, and the employment of the latter is open to special and grave objections. We are to bear in mind the design we have in view in using it—to exert a full, steady, equitable traction power, without inflicting the slightest injury upon the vagina. I believe that the crotchet often fails in fully effecting either of these results. First, it does not effect a steady and equitable traction power, because it bears but on one point, the result of which shows itself in the fact—often but a bone is drawn away, when the head should be extracted. Secondly, it is *liable* to effect injury upon the vaginal parts; this is manifest from the fact that we are obliged to guard the point externally to the head when attempting traction. Under such circumstances

[a] These Reports are supplied by Dr. Geo. H. Kidd, Secretary to the Society.

an instrument that might be able to effect an equitable traction, without the obvious liability of the present crotchet to inflict injury on the parts concerned (as it is certainly a desideratum) would be well worthy of the attention of the profession. I beg to present to you, gentlemen, an instrument made under my direction by Mr. John White, of 68, Upper Sackville-street, which I anticipate will be found to combine the double offices of the perforator and crotchet—thus, at the very start, simplifying the duties of the operator, and enabling him to effect the desired result with a greater degree of certainty and success. The precise nature and mode of employment of the instrument I now beg to lay before you. First, it is calculated to effect perforation; and, having done so, by the action of a screw two arms are developed at right angles with the shaft, two inches from point to point. The advantage of the purchase, so to speak, of such a double traction, must be apparent. And in case any such unfortunate circumstance should arise, that the parts under traction should give way, you have the power of withdrawing the arms within the shaft, and removing the instrument.

As I believe the instrument which I now have the honour of exhibiting to be original in its design and operation, I may be pardoned the liberty of naming my own offspring, and beg to present to you, Mr. President, and to *you,* the honoured master of this great institution, Halahan's perforate-crotchet.—11*th March*, 1865.

Dr. De Ricci read a letter from Dr. T. H. Purdon of Belfast, detailing cases in which the employment of bisulphites had proved very beneficial. —8*th April*, 1865.

Dr. Foot read a report on the anatomy and pathology of the monster exhibited by Dr. Cronyn on 14th February.—8*th April*, 1865.

Fatty and Hydatigenous Degeneration of the Placenta.

Dr. John A. Byrne said:—

The cases which I bring before the society may perhaps be thought not undeserving their attention, inasmuch as one of them serves to illustrate the manner in which syphilis is sometimes communicated from the male to the female parent—viz., through the medium of the fetus—and they both serve to illustrate highly interesting changes to which the temporary nutritive organ of intra-uterine life is liable.

Case I.—On November 7th, 1864, I was requested to visit a lady who had come from England. She had been married some time, and had become pregnant, but complained that her general health was not as good as it had been some time before.

On my visiting her I found that, according to her own calculations, she was about six months pregnant; but, indeed, there was some difficulty

in fixing the exact period, as she had forgotten the date of her last menstruation, and could not fix the period of quickening. However, from the size of the abdomen, the uterus extending to the umbilicus, and the fetal heart being distinctly audible, I thought she was about six months pregnant. She had enjoyed excellent health from the time of her marriage until about two months before my visit. She then began to experience pain of a lancinating character in the vagina, and about the anus, and she noticed some tumours which she thought were hemorrhoids. These caused her extreme pain and annoyance. She complained, also, of soreness of the throat and general *malâise*. There was a superficial abrasion of the right nostril, which excited my suspicion on account of its coppery appearance, and on looking into the throat I detected the characteristic ulcer on the tonsils. I suggested an examination, to which she most willingly assented, when I found the labia and the region about the anus studded with well-marked syphilitic tubercles. They were remarkably hard and dry, free from any discharge, and extremely sensitive. There were a few small copper-coloured blotches scattered over the arms and thighs.

There was no doubt in my mind now of the nature of the case; and I told the husband of the lady my opinion. He stated that he never had a primary sore, nor discharge of any kind, but that four years before his marriage he had a bubo which yielded to treatment, and that he never had any secondary or tertiary symptoms. He also told me that he had consulted a distinguished surgeon before he married, who advised him as a matter of precaution, to undergo a mercurial course, which he did; and at the time I saw him he had not the slightest trace of any syphilitic taint. Here, then, was a case in which the syphilitic taint was clearly communicated to the mother in an indirect manner, viz., through the fetus, as I have not the slightest doubt that the gentleman's account was correct. The lady was ordered a slight course of mercury, to which she was very impressionable, her mouth becoming sore on the second day from the administration of two grains of hyd. c. creta three times a day. Black wash was ordered locally to the tubercles, and she soon began to improve; and she was then ordered small quantities of iodide of potassium in sarsaparilla, and subsequently tonics and chlorate of potash, and about the 6th December she was apparently free from any traces of the disease, and her general health remained excellent up to the period of her confinement.

Her confinement took place at Kingstown, where I had ordered her for her health, on January 27th, when she gave birth to a male child, dead born, and apparently dead for about three weeks or so, just corresponding to the period at which she ceased to feel fetal movements, and which presented all the appearances which are characteristic of the fetus, which has perished and remained about this time in utero. The presentation was

breech, and the labour was very quick, and with the exception of slight hemorrhage before the completion of the third stage, there was nothing remarkable. The lady's convalescence was excellent, and there was well-marked mammary secretion on the third day, a circumstance which is often observed in cases where the children are born dead, and have been some time dead in utero.

On examining the placenta it was smaller than is usual. What struck me particularly about it, however, was the appearance of the maternal surface. Instead of presenting the usual fleshy appearance, this surface was smooth, glistening, and as if it had been converted into fat; and on making a section of it this condition appeared to pervade nearly its entire extent.

Such a complete degeneration of the placenta into fat as in this instance I have never seen before, although I have seen many cases, as most of the gentlemen here, who have much experience in such matters, I am sure have, in which partial deposits of fat, or fatty-looking substances, took the place of the natural tissue of the placenta; nor do I remember ever having seen a case in which this development of fat existed to such an extent as to warrant me in attributing to it the death of the fetus, or to look upon it as the effect of the death, and I regret very much that circumstances have prevented me from exhibiting it here this evening, but its original appearance was very soon lost. I, however, had a section made by my friend Dr. Cryan, who kindly exhibited to me the microscopic appearances, which very much resembled those delineated by Dr. Hassall in the paper which has been published by Dr. Barnes.

The second case, in which I was able to trace the connexion of syphilis with placentary degeneration, but of a different kind, viz., hydatidiform, or vesicular degeneration of the chorionic villi, I shall briefly describe. A young woman, whom I had treated for primary and secondary syphilis, and who had contracted it from her husband after the birth of her first child, again, after weaning her child, became pregnant. When, according to her own calculations, she was about four months pregnant, she again consulted me, and complained that she suffered from great sickness of stomach, swelling of the feet and legs, and great increase of size of abdomen. On examining her, I found that the abdomen was much larger than what should be expected at this period—the uterine tumour extended, in fact, to the umbilicus, and the lower extremities were anasarcous. I could not hear any bruit nor fetal heart sounds. In a few days afterwards she was attacked by uterine hemorrhage; and this was followed in seven or eight days by the expulsion of a large mass of vesicular growths. There was no trace of a fetus, but the expelled ovum presented all the characteristic features of this degeneration so well described by Mettenheimer, Hewitt, Barnes, and others.

She recovered perfectly, and has since become pregnant.

Dr. Byrne here exhibited the hydatigenous preparation.

Although Drs. Barnes, Druitt, Hewitt, and others have described this form of degeneration very accurately, as well as the other form, and have endeavoured to explain the causes which lead to such a wonderful metamorphosis as that which occurs particularly in the hydatigenous variety—and although they have detailed many examples of the occurrence of both kinds of degeneration, yet in none of their cases have they shown that it depended upon a syphilitic taint, although syphilis is laid down in all treatises upon obstetrics to be one of the most frequent causes of abortion. Perhaps in many of the cases detailed this change or degeneration may have depended upon this poison being in the maternal system; but the fact is not mentioned, and any new facts which would tend to illustrate the particular mode by which the disease may destroy the fetus in utero, may have the effect of eliciting the opinions of the members of this society upon this highly interesting subject.

In my own limited experience I have seen many cases of abortions, and also of children born dead and putrid, and some, also, of hydatidiform placental degeneration; and I have examined the placenta in numerous instances. But I have never seen the placenta so much altered in cases of dead and putrid children, or in abortion even at a late period, as I have seen it in the case I have just described. The usual appearance of it, in cases where the fetus had perished some time before delivery, was this:—It was smaller than it ought to be, softer, too, lighter in colour, and flabby in consistence; in some cases tubercular-looking particles, like small lumps of fat, were seen, and even in some placentas, which could not be but regarded as normal, these were occasionally to be found scattered through its substance. In some cases, too, in which the fetus perished previous to birth, no doubt, I have seen the maternal surface presenting an appearance as if it had been coated over with a tallowy substance, but in most of these instances it was very superficial.

Dr. Hassall says:—In the placenta affected with fatty degeneration certain of the lobes, in place of presenting the red spongy texture of the healthy tissue, exhibit a fatty appearance, and are of a yellow colour, glistening, firm, and ex-sanguinal, while the remaining lobes present their ordinary characters, at least to the unaided eye.

Different Degrees.

1. We observe that the villi are thickly studded with innumerable sphericle of oil.

2. The chorion is much altered; it is thickened, and destitute of nuclei.

3. The walls of the vessels no longer contain nuclei, these having, in all probability, degenerated into oil sphericles.

4. The sphericles of oil are contained some in the chorion, some in the

walls of the blood-vessels, and many in the intervals or spaces between these.

5. The cavities of the vessels are almost invariably free from fatty deposition.

6. The vessels are destitute of blood.

For our present knowledge of fatty degeneration of the placenta we are indebted chiefly to Dr. Barnes who, in Vols. XXXIV., XXXVI., of the *British and Foreign Medical and Chirurgical Review*, has largely discussed this affection or pathological change in an organ which is so essential in its integrity to the life of the fetus in utero, although he acknowledges that before his description Kilian described a case in which he dissected an ovum affected with fatty degeneration.

The present theories with regard to this transformation are two, viz. :— First, that propounded by Kilian, Barnes, and Hassall, which is, that the metamorphosis or change in the placenta, in both cases, viz., fatty degeneration and hydatidiform degeneration precedes the death of the fetus, and is in fact the cause of the death, either by producing hemorrhage, and thus cutting off the supply to the fetus, and necessarily exciting the uterus to expel the dead ovum, which acts as a foreign body, or if there be no hemorrhage, by the separation or rupture of the utero-placental vessels ; by those fatty masses pressing upon the fetal villi, and by this obstruction eventually cutting off the supply, just as we see the vessels in other organs obstructed, and the supply to those organs cut off ; and in this manner the fetus perishes through inanition, as it were ; and thirdly, in some cases a combination of both causes leading to the expulsion.

Dr. Druitt, in a very able paper, whilst agreeing with Dr. Barnes as to the appearances of fatty placenta, takes a different view, and looks upon this change or degeneration as only one occurring in an organ manifestly lardaceous, and comes to the conclusion that traces of fatty or earthy degeneration are to be found in all *mature* human placentas, and in noticeable degrees in at least one-fourth. He says :—

1. And often incipient degeneration is a normal condition of the placenta at the end of pregnancy.

2. That it arises from partial cessation of the active functions of the organ, when the fetal development is nearly completed.

3. That when occurring in the *earlier months*, it probably arises from some antecedent want of nutritive force in the fetus, or by its death.

Dr. Graily Hewitt, in a paper read before the Obstetrical Society of London, and published in the reports of that society, whilst agreeing with Cruveilhier, Mettenheimer, Giërse, Wedl, and others, as to the characters and appearance of the vesicular mole, dissents from Mettenheimer and Naegelè as to its origin. They look upon it as essentially consisting of cyst formation, and as resulting from transformation of the villi of the

chorion; but he is rather disposed to agree in opinion with Giërse, who thinks that the change consists in hypertrophy of the natural structures found in the chorionic villi, with secondary œdema. He then goes on to combat the opinion of Barnes, that the disease of the chorion is the cause, the death of the ovum the effect, in fatty and vesicular degeneration of the chorion, whose buds—to quote the words of Dr. Barnes—under the influence of a perverted developmental force, instead of growing into villi, may dilate into true vesicles or hydatidiform cysts; and Hewitt expresses an opinion diametrically opposite to that of Barnes, viz., that the changes or degeneration are *secondary* to and a *consequence* of the *death* of the ovum, and he advances some strong arguments in favour of this view. He says, that during the second months of fetal life the chorionic villi are in a state of great activity, supplying the means of growth to the embryo; and according as the fetus is growing some of these villi begin to be developed into the placenta, while the remainder undergo a gradual disappearance, the vitality of the fetus determining the further development of the placenta villi, and the development of the fetus and the placental chorionic villi proceeding *pari passu*. He says that there are no facts showing, that the embryo being dead the chorion villi can subsequently become developed into blood-vessels, as is the case when the life of the embryo persists; but when the embryo dies, this circumstance does not necessarily determine the cessation of vitality in the chorion villi; in order that this may be the case it is necessary that a separation be effected between the uterus and decidua. As long as the decidua remains connected with the uterus, the chorionic villi will continue to enjoy a certain degree of vitality; but the embryo, having ceased to live, this vitality is bereft of developmental power, and the chorionic villi, though they may actually grow and increase in size, retain the essential structure which they possessed when the death of the embryo took place. Accordingly, if the death of the embryo occur very early, and before the appropriation of certain of the villi to form the placenta has commenced, the ovum may continue to grow, and may remain in the cavity of the uterus, and in such a case the whole of the chorionic membrane would give rise to hydatidiform villi. If, on the other hand, the death of the embryo be postponed until the formation of the fetal placenta has commenced, the hydatidiform degeneration will be necessarily limited to that part of the chorion which is in contact with the decidua scrotina. He also says, that after the villi form the placenta they are no longer capable of undergoing the hydatidiform degeneration. Regular blood-vessels having taken the place of these processes, the conditions necessary for the production of these peculiar vesicular enlargements no longer exist, and he limits the period of this degeneration to the end of the third month at furthest—no hydatidiform degeneration occurring subsequently to this period, according to his opinion.

Now, I have in my possession a preparation of a withered blighted fetus, which had arrived to the fifth month at least of intra-uterine life, and which was expelled with a large quantity of vesicles. The fetus is well formed, but presents all the signs of having been dead in the uterus for a considerable time before its expulsion, viz., it is flattened, shrunken, and has the appearance of having been pressed for some time between two hard substances. In this case numbers of vesicles were discharged, and numbers are attached to the placenta and chorion; but the specimen shows that the placenta is formed, and the vesicular degeneration went on still. Dr. Hewitt accounts for a case somewhat similar to this, by stating, that a few of the villous processes, which at an early period of development completely cover every part of the chorion, had remained in this situation, and had been developed into the bodies.

So much has been written upon this interesting pathological condition by the advocates of both views of the question, and the subject has been so exhausted in the papers above quoted, that any arguments that I could bring forward could have very little weight; but the bringing forward of those two cases may perhaps elicit a discussion as to the views which the two different theories may have influenced the members to take—viz., whether placentary degeneration of either the fatty or vesicular kind is the cause of the death of the fetus, or whether it is the effect. My own tendency, I must confess, after attentively considering both views of the question put forward and supported by so many elaborate arguments, is to regard the explanation of Dr. Hewitt as the most satisfactory, although I have great respect for the opinion of so distinguished a writer as Barnes.—*8th April*, 1865.

Dr. Denham exhibited a larynx taken from the body of a woman who died soon after confinement.—*8th April*, 1865.

On Dysmenorrhea. By George H. Kidd, M.D., F.R.C.S.I., Assist. Physician to the Coombe Lying-in Hospital.

Painful menstruation is a symptom common to so many affections that to discuss the subject fully would be to enter on the consideration of the whole range of uterine and ovarian pathology. In fact, dysmenorrhea is but a symptom, and is no more entitled to a place in our nosological lists than is dropsy; but as dropsy is often the most prominent symptom, and one for which it is sometimes difficult to ascertain the cause, so painful menstruation is very often the symptom that makes patients first seek our aid, and on examination it is either found to depend on some organic disease, or it may be impossible to detect any definite cause for its production. Cases of this last description are, however, becoming more rare, and there are good grounds for expecting that as our knowledge

of uterine disease becomes more extended, we shall be able to trace all cases of painful menstruation to their cause, and by directing our treatment to the removal of this, make it more successful than it can claim to be at present. I do not mean to attempt then a full exposition of the causes of dysmenorrhea, but rather to relate briefly some of the more typical of the cases I have records of in my note book, with such observations as they may suggest.

The first case I shall mention is that of a young English lady, who came under my care in 1860, while on a visit with some of her relatives in Dublin. When I first visited her, I found her in great pain, her face livid and dusky, her features contracted, the surface of the body cold, the pulse small and quick; she lay writhing in bed, straining herself with ineffectual efforts to vomit, and every few moments dashing off the clothes, and throwing herself from side to side in paroxysms of pain. In this state she continued for several hours, notwithstanding the use of opiate enemata, hot fomentations, the exhibition of opiates and stimulants by the mouth, and ultimately the inhalation of chloroform; but this latter, I must say, I did not push to its full physiological action, being deterred from doing so by the state of the circulation, and the colour of the face. I learned from her at my visit the following day, that she had been in the habit of suffering in this way at each menstrual period for some years past, though not generally to the same degree as on this occasion. When she first began to menstruate she had no inordinate pain; but about three or four years after it commenced, and four or five before I saw her, she got a chill one day while menstruation was going on, by which it was suddenly suppressed. At the next period she had some pain, and the discharge was so excessive that medical advice had to be obtained, and for ten months after this she did not menstruate at all. Then the function was re-established, but was ever afterwards attended with great pain. During the interval she believed herself to be in good health. By the use of warm hip-baths, leeching at the anus, counter-irritation over the iliac regions, tonics and aperients during the intervals, and the early use of opiates when the pain set in, the three or four succeeding catamenial periods passed over without very much suffering, and this lady returned to England; but her sufferings soon became as severe as ever.

I next saw this lady in the month of November, 1862. She had then been married for some months, and had come to reside in Dublin. The pain was now even worse than it had been before; her general health was suffering, and she had, during the intervals, a good deal of muco-purulent discharge, which was often of a brownish-red colour, as if from being mixed with blood, and she often suffered a good deal of pain at the middle of the intervals between the periods, but without menstrual discharge. I now made a digital examination, when I found the uterus low

in the pelvis, soft, large, and retroflexed, the os so large as to admit the entrance of my forefinger. On introducing a speculum, I found the lips greatly congested, swollen so as to evert the lining membrane of the cervix, and appearing to be so softened that the fingers might be pushed into their substance with ease. From the interior of the cervix, a long string of clear ropy mucus hung down into the vagina; and, on attempting to remove this, the surface was very easily made bleed. The uterine sound passed freely, and the retroverted fundus was easily replaced, but fell back again on the sound being withdrawn.

Here, then, was a case of inflammation of the cervix extending into the canal of the neck, and the most prominent symptom, in fact, almost the only one complained of, was pain during menstruation; and certainly the constitutional disturbance produced by that pain was greater than it has ever been my lot to see under any circumstances, the system being brought, on many occasions, into a state resembling the collapse of cholera.

By the use of frequent leeching to the cervix, baths, counter-irritation, painting the cervix with strong tincture of iodine, and long-continued rest, with appropriate constitutional treatment, the condition of the cervix was improved, and the pain relieved; still the marriage remained unfruitful, and after some time all the symptoms returned, and on the 15th of September, 1864, I was again called to see her, when I found her suffering nearly as much as on any previous occasion. As soon as the catamenial flow was over, I examined the uterus, when I found the cervix again inflamed, and assuming the same spongy condition as before, which perhaps had never been thoroughly removed, and I determined, after subduing the acute symptoms, to try to modify the condition of the tissues by the deep action of the potassa cum calce. With this, after the lapse of a few days, I formed a deep eschar on each lip; and at the same time I passed the caustic into the interior of the neck, so as to act superficially on the mucous membrane lining it. When the eschars separated, the ulcers produced by the caustic healed rapidly, but required the occasional application of nitrate of silver to check exuberant granulations; the cervix became firm and small, the secretion of tenacious mucus from the cavity of the neck ceased, and the os closed to its natural size. The succeeding period passed without any pain whatever, and the lady became pregnant, and is now in her seventh month, and in the enjoyment of good health.[a]

The next case which I shall take from my note-book is an illustration of that form of dysmenorrhea in which the body of the uterus is the part engaged, the cervix often remaining healthy, or being but very slightly affected. Fortunately this is not so common a form of disease as that which existed in the preceding case, for, from the affected part not being

[a] Since this paper was read this lady has been confined, and is now in good health.

so ascessible to treatment, we have much more difficulty in accomplishing its cure. I have met the disease under two forms—first, as an effect of deficient involution of the uterus after delivery; and secondly, as the result of chronic internal metritis. The following is an illustration of the first of these forms:—

Mrs. W., a widow lady, consulted Dr. Banks for palpitation, and a variety of dyspeptic symptoms; and he, tracing these to their true source, a uterine affection, placed her under my care. This lady had four children; her husband died from fever shortly before she was confined of her last child, who is now ten years old. She had a bad recovery from this labour, and was not able to nurse the child. Ever since this she has suffered from pain in menstruation, the usual course being to have pains for some hours before the menstrual fluid appeared; then the discharge came on scantily, and gradually increased in quantity, when the pain subsided; she now remained free from pain, but generally on the third day the discharge increased greatly in quantity; and on many occasions the hemorrhage was so great as to seriously alarm and weaken her. During the intervals of menstruation she suffered chiefly from palpitations and flatulent dyspepsia; but sometimes she suffered severe pain in the back, extending down one or other leg, making her almost unable to move—attributed, she said, by her medical attendant in the country, to a falling backwards of the uterus, so as to press on some of the sacral nerves, and relieved almost instantaneously, by him, by placing her in the erect posture, and passing his finger into the vagina and tilting the uterus forwards. On examination I found the cervix of the uterus a little larger than usual, but presenting its natural colour and consistency, with a smooth surface, and the os of a normal size. The sound passed into the uterus to the extent of four inches, being an inch and a-half more than it ought to do; and on placing my hand on the hypogastric region I could detect the body of the uterus very much enlarged, and tender to the touch; but the enlargement was uniform; there was no tumour in any part of the uterine walls, or localized swelling, which, with the history of the case, the absence of unhealthy uterine discharge, and the comparative freedom from constitutional suffering, induced me to attribute the enlargement to deficient involution after labour rather than to chronic metritis.

The hemorrhage, on the second or third day of menstruation, is, I believe, an almost constant symptom in cases of enlargement of the body of the uterus.

It will be observed that in both of the foregoing cases there was great pain before and at the commencement of menstruation, and relieved when the discharge flowed freely, thus resembling cases where there was a mechanical impediment to the escape of the discharge; and yet during the intervals the sound passed into the uterus freely, showing that the

canal was quite pervious. Two explanations of this have been offered. Dr. Graily Hewitt and Dr. Meadows believe that though the canal is quite open during the interval of menstruation, it is closed at the commencement of the process by the congestion and erectile enlargement of the uterus that takes place at this time, and that the pain arises from the efforts of the uterus to expel its contents. Scanzoni, adopting a somewhat similar view, suggests that the abnormal nervous irritation of the uterus may give rise to reflex movements of the organ, and to a convulsive contraction of the cavity of the neck, hence the escape of the blood which is already effused, is impeded by an obstacle which irritates in its turn the motor nerves of the body and fundus of the uterus. "This, he says, is what to us appears particularly to take place in cases where after intense expulsive pains, lasting perhaps several hours, the patients suddenly eject a considerable quantity of blood, partly liquid, and partly coagulated, and find instantaneous relief."

Dr. West, on the other hand, attributes the pain altogether to the congestion, "the congested womb ached," he says, "till nature bled it, just as the head aches till the cupping glasses or the leeches have relieved the overloaded cerebral vessels."

My own observations incline me to believe with Dr. Graily Hewitt and Dr. Meadows, that in these cases "there is a partial but temporary menstrual retention," and to attribute this, in many cases, to the mechanical closure of the passage by the erected and congested state of its walls; but very frequently a clot forms in the body of the uterus, and passing into the cervix obstructs the escape of the discharge, till it is forced by the uterine contractions out of the way. Acting on this view, I recommended the application of two or three leeches to the anus at the onset of the pain, in the case now under consideration, that by emptying the hemorrhoidal veins which have a direct communication with those of the uterus the pressure on these might be relieved; and the effect was most beneficial. The pain at the commencement of the process has been greatly and almost immediately relieved, and there have been no hemorrhages, so that instead of being weakened by the leeching, there has been a great saving in the amount of blood lost, and in the strength of the patient.

The administration of Indian hemp contributes to the same end, as it seems to lessen the tendency to hemorrhage, and acts at the same time as a sedative. A combination of ipecacuanha with sedatives is also useful; the nausea caused by the ipecacuanha, perhaps, serving to relax the spasm, or reducing the erection of the os. In some of these cases the warm hip bath, especially after leeching, and allowing the leech bites to bleed in the bath, gives more prompt relief than any other means. The enlargement of the body of the uterus, or the chronic metritis, must be attended to during the intermenstrual periods; unfortunately both

affections are very little amenable to treatment. In some cases of metritis the retention of the secretions within the uterus keeps up the irritation, so as to render all treatment useless till the passage is fully dilated. In one instance of chronic internal metritis, that I saw about six years ago, and that had previously been under treatment for years without benefit, I obtained the assistance of Dr. Beatty, and divided the cervix, with Dr. Simpson's metrotome, and from that time an improvement began in her symptoms; and though from her leaving Dublin I have lost sight of her, I have reason to believe the improvement has been permanent.

Did time permit, I would next detail a case in which chronic subacute cellulitis, or metro-peritonitis, the remnant of an acute attack supervening after labour was the cause of painful menstruation in a previously healthy woman; but I must pass over this, as well as the cases of painful menstruation in affections of the ovary, in chlorosis, and in the deferred menstruation of young girls, of all of which my notes afford good illustrations, to speak of that form depending on a mechanical impediment to the escape of the discharge from narrowness of the passage.

I believe this obstructral dysmenorrhea to be much more common than some of our standard works would lead us to anticipate, and that it is one of the most frequent causes of sterility. I have met with it as a congenital and as an acquired affection. In the congenital form the organs may all be quite healthy, with the exception of the narrowing of the passage, or there may, of course, be superadded disease. In the acquired form, I have seen it as the result of the contraction of cicatrices from ulcers, and from the use of the stronger caustics, also from the hypertrophy of chronic inflammation, and from the contortions of the canal caused by displacements of the uterus. In all of these cases the dilatation of the canal is an essential part of the treatment, and in uncomplicated cases the relief from pain is immediate. The dilatation may be produced by dilating tents, such as sponge, gentian root, or sea tangle—by the use of bougies gradually increased in size, or metallic dilators, or by instruments for dividing the sides of the canal, such as I exhibit.[a]

I have dilated the cervical canal of the uterus, in many cases, by most of these methods, all of which have peculiar advantages in special cases. In a case of acquired narrowing, the result of chronic inflammation of the cervix, that I attended with the late Dr. Montgomery, we dilated the passage by introducing bougies every day, for some weeks, gradually increasing their size; the narrowing was permanently relieved, and the lady who had been sterile for some years, soon afterwards became pregnant.

The sponge or tent of sea tangle affords a more rapid dilatation; but the

[a] Dr. Kidd exhibited the instruments used for dividing the os by Dr. Simpson, Dr. Coghlan, Dr. Greenhalgh, and Dr. Savage.

passage closes again nearly as rapidly as it had been opened. In one case of congenital narrowing, in which I assisted Dr. Sawyer to slit the os with Savage's hysterotome, he told me that it had been several times fully dilated with sea tangle, but without any benefit, and this fully accords with my own experience. When it is required to dilate the passage for temporary purposes, the sea tangle is a most valuable agent; but for the cure of dysmenorrhea or sterility, I believe it to be useless, unless it can be followed up by the daily introduction of bougies, or by keeping some such instrument in the passage for a considerable time.

Dr. Gream, of London, has recently written to the *Lancet* renewing a recommendation he had made in 1849, to use a metallic instrument with expanding blades, for the purpose of dilating the passage; others have also recommended metallic dilators, and the late Dr. Johns showed me wooden screws of a conical form, the invention, he said, of some French surgeon, which he was in the habit of screwing into the os for the purpose of dilating it; but I think the objection applies to all of these instruments that they do much violence to the uterine tissues, which may give rise to serious inflammation, and that the dilatation they effect is not permanent.

Dr. Simpson was, I believe, the first to adopt the plan of dividing the cervix, for doing which he used a *bistoire caché*. Having regulated by a screw the extent to which the blade may protrude, he guides the instrument, in the closed state, into the os with his finger, then presses on the handle, protruding the blade, and withdraws the instrument, dividing one side of the cervix in doing so. He then turns the instrument, re-introduces it, and divides the opposite side. He directs us, in performing this operation, to divide the os internum to a slight degree, and to slit completely the portion of the cervix within the vagina, so as to make a funnel-shaped opening. Nitrate of silver is then to be applied to the angles of the wound, so as to prevent union by the first intention, and the parts are to be painted over with a solution of perchloride of iron to prevent hemorrhage.

Our late President, Dr. Beatty, suggested the use of the four-bladed speculum in performing this operation; and in one case I adopted his plan, but I found it very difficult to make sure of the distance to which I had introduced the metrotome into the uterus, from the way in which its polished surface reflected the light, so that in subsequent operations I have always used Sims' "duck-bill" speculum, which enables one to see and touch the os at the same time.

Various objections have been made to this operation, both as to its details and to its principle. I shall first consider the improvements that have been suggested as to the details. In the first place, it is objected by Dr. Coghlan, of Wexford, who has written some valuable papers on the subject in the *Medical Times and Gazette*, that the incision is

unnecessarily large, and he has suggested the use of a cutting gorget with a probe point, to make an opening of a definite size by being pushed into the uterus, the probe point keeping it within the canal; he then introduces a roll of lead to keep the wound from closing; and he has published many cases successfully treated on this plan.

In using the instrument, the finger is placed against the os uteri, and the gorget glided up on the finger till the point enters the os. It is then pushed on in the axis of the uterus, dividing the cervix in its passage, to the extent of its own breadth only. Dr. Coghlan believes the probe point is sufficient to keep the gorget within the canal of the cervix, and that from the limited extent of the incision there is little or no danger of hemorrhage, while by keeping the roll of lead in the passage till the wound heals, he secures its remaining patent. I have never used this instrument, believing that there would be much risk of driving it through the walls of the uterus, and wounding the peritoneum or other important parts.

Dr. Coghlan devised the "dilator" I exhibit for introducing the lead. He rolls a thin piece of lead round the point of the instrument when in its closed state, and then introduces it well into the uterus, and expands it by opening the dilator, which he then withdraws, leaving the leaden tube in the canal of the cervix. In cases of slight contraction he uses the lead without any preliminary cutting, a practice that I believe to be often very useful, especially after the use of sea tangle or other dilating tents.

The next instrument I have to exhibit is that devised by Dr. Greenhalgh, of London. It consists of two blades concealed in a metallic sheath. It is introduced into the uterus in the closed state, a handle is then withdrawn, which causes the blades to protrude, and at the same time draws them out of the uterus. The blades expand gradually, so as to divide the os internum very slightly, and the os externum completely, thus making the funnel-shaped incision recommended by Simpson, but doing it all at one operation. I believe this to be an improvement on Simpson's instrument, inasmuch as it divides the cervix at one operation, and divides the two sides equally. In using Simpson's instrument, the back is firmly supported during the dividing of the first side of the cervix, but in dividing the opposite side the back of the metrotome slips into the incision already made, and the second side is either divided insufficiently, causing the operation to fail; or it may be divided too extensively, giving rise to profuse hemorrhage, or some of the other accidents that have followed the operation. But Dr. Greenhalgh's hysterotome seems to me objectionable, and that for two reasons. 1st. It attempts to do by mechanical arrangements what should be done by the hand and eye of the operator, that is to regulate the extent and direction of the incision, and it is consequently not adapted to uteri of varying size.

2nd. The bulk of the sheath obstructs the view of the parts to be divided.

The instrument I have used in all my late operations is the one known as Dr. Savage's. It is like a scissors, and consists of two blades, but with their cutting edges directed outwards. In the closed state the blades overlap each other, so that the cutting edge of one is protected by the back of the other, and a sheath is unnecessary. It is introduced into the uterus within the os internum in the closed state, the canal being first dilated with sea tangle, if necessary. The blades are then opened by pressing on the handles, and the instrument withdrawn, dividing the cervix in its passage.

In using this instrument I place the patient in the prone position, and introduce the "duckbill" speculum, which is held by an assistant, I then pass the hysterotome into the uterus, and place my finger on it close to the os, by which means I am able to judge of the progress of the incision, and I divaricate the blades as I withdraw them, so as to divide as much of the cervix as I think necessary, which can be done with great accuracy, as the operation is under the guidance of both finger and eye. After dividing the cervix, I roll a piece of thin lead on a common dressing forceps, and carry it up into the wound, when by opening the forceps I expand the lead, taking care to do so more below than above, so as to preserve the funnel shape of the incision, and withdraw the forceps, leaving the lead in the wound. I then place a piece of cotton wool in the upper part of the vagina, which serves both to keep the lead in its place, and to control bleeding if there should be any. The lead may be withdrawn after a few hours, as there will be no risk of union by the first intention, but in some cases may require to be re-introduced at a subsequent period, to prevent contraction of the cicatrix.

In a paper recently published in the *Lancet*, Dr. Marion Sims advocates, very strongly, the slitting of the os uteri, in cases of dysmenorrhea, and describes the mode he adopts, which is different from any of those I have alluded to. He places the patient in the prone position, and having introduced the "duckbill" speculum, he seizes the anterior lip of the uterus with a hook, so as to steady it and draw it downwards, and then he divides with a scissors the sub-vaginal portion completely through on each side. Having done this, he passes a knife into the uterus, and divides the os internum on each side, but to a less degree of course. The knife he uses in this stage of the operation consists of a long blunt stem, with a small, curved, and movable blade attached at its point. I have not seen the operation performed in this manner, but judging from the description, it does not seem to have any advantage over the less complicated method with Savage's hysterotome.

So much as to the various instruments which have been devised for performing this operation; the objections which have been made to the

principle of the operation itself are founded, firstly, on the hemorrhage which it produces. As to this, I believe that with Dr. Savage's or Dr. Greenhalgh's instruments the liability to hemorrhage is very much lessened; and at all events, the hemorrhage can, I believe, in all cases, be fully controlled by plugging the vagina. Another objection, and, perhaps a more serious one, is founded on the liability to the setting in of pelvic cellulitis after the operation, or of inflammation extending to the peritoneum, and giving rise either to acute peritonitis, or (as occurs more frequently) the sub-acute and chronic form of the disease. This objection, is no doubt, a very serious one, but I think that by selecting a proper time for the operation, *i.e.*, when the patient is in good health, and by insisting on a sufficient amount of rest after the operation, the danger is very much lessened. Dr. Gream, of London, has lately proposed a new objection to the operation, but he has surely exaggerated. He states that in a case in which the operation was performed, and the patient subsequently proved pregnant, he found the os at an early period of the pregnancy completely open, and the membrane exposed, as if in the first stage of labour. The result was, that though the lady proved pregnant on several occasions, she always aborted in the third or fourth month. I have attended a lady in several pregnancies, who had been operated upon by Dr. Simpson, and there was no tendency to abort, nor was the os dilated to such an extent as to expose the membranes.

In only one case have I seen the operation followed by hemorrhage, or any inflammatory action. This was a case, in which I operated on the 8th of February last, assisted by Dr. Sawyer. The nurse took on herself, in direct opposition to the orders she had received, to remove the cotton plug and with it the leaden tube, hemorrhage soon set in, and I was sent for about two hours after the operation, when I found considerable bleeding had taken place, I stopped this without difficulty, by cold applications, and re-introduced the plug. The lady made a good recovery, and went to the country on the 20th of February. On the 16th of March she called at my house, and stated she had menstruated without any pain whatever, and on examination I found the os well dilated, and the uterus healthy. On the 26th of March, I was sent for to see her, I found her very feverish, and complaining of severe pain in the back, knees, ankles, and shoulders. She stated that some days before she had been subjected, for nearly two hours, to a very cold draught, and that night had a rigor, followed by the present feverish attack. This state continued with many of the characters of acute rheumatism till the beginning of April. On the 6th of April she was able to sit up, the pains having all disappeared; but in a few days she complained of a fixed pain in the left hip and iliac region, and pain in defecation. No tumour was perceptible in the abdomen, but on making a vaginal examination I found considerable swelling between the uterus and rectum, and

very tender to the touch. This gradually resolved, and the lady left Dublin for the country; and whether the operation is fairly chargeable with the inflammatory attack or not, I will not undertake to say, but it is the only case in which I have seen anything unpleasant follow it.—13*th May*, 1865.

Puerperal Tetanus.—Dr. Denham read the details of three cases of tetanus occurring after abortion with much hemorrhage; one case of the same affection, after a labour at the full time, which had been complicated with severe hemorrhage and adherent placenta; and a case that occurred in a cow after calving, where the placenta had also been adherent; and made the following remarks:—

When we call to mind the fact that neither Denman, Davis, Bamsbotham, Murphy, Meigs of Philadelphia, nor even our esteemed President, Dr. Churchill, make any allusion to puerperal tetanus in their works on practical midwifery; and further, when I state that the subject is not even once alluded to in any of the reports that have emanated from the Rotundo Hospital by Collins, Hardy and M'Clintock, or Johnston and Sinclair, and that, so far as we can ascertain, no case of puerperal tetanus has ever occurred within the walls of that institution, I feel assured you will not think it intrusive on my part when I bring before you these cases of puerperal tetanus.[a]

In Dr. Merriman's synopsis of difficult labours he publishes a list of 10,190 cases in which there occurred 106 deaths, and and only one of these is noted as having been produced by lock-jaw.

It was formerly supposed that tetanus was more common among females than males; the reverse, however, is now found to be the case. Out of 128 cases, collected by Mr. Curling, 112 were males, only 16 females.

Professor Laurie, of Glasgow, makes mention of 221 cases; of these 185 were males, 36 females. Of 1,069 fatal cases reported by the Registrar-General of England, 829 were males, 240 females. Another prevalent opinion, namely, that tetanus is more common in this country in the warm than in the cold months of the year is found to be erroneous; thus, in the Registrar-General's report 179 individuals are reported to have died of tetanus in London from 1840 to '47; of these 49 occurred in the Spring quarter of the year, 37 during the Summer quarter, 34 during the Autumn, and 39 during the Winter quarter. There can be no doubt, however, that the disease is more common in warm than in temperate climates.

[a] In the *Dublin Quarterly Journal*, No. XXX., we have a case detailed from the unpublished manuscripts of the late Abraham Collis, where the disease came on a fortnight after delivery, apparently from exposure to cold, and proved rapidly fatal. And in the *Lancet* of June, 1838, Dr. Finucane, of Nenagh, gives a case of placenta previa, in which he turned. Tetanus set in on the fifth day after delivery, and proved fatal in fifteen hours after the attack.

The number of cases in England and Wales has varied, for many years, from 120 to 150 each year. The only cases mentioned by Dr. Simpson as having occurred in his own practice is one where he dilated the os uteri to allow a polypus to descend from the cavity of the uterus. The use of a sponge tent for a few hours opened the os sufficiently. Uterine contractions came on in a few days, and the polypus came away without any further operation. The patient appeared to go on well up to the ninth day, when she complained of stiff and strange feelings about the face. The disease rapidly advanced, and she died in about fifty-five hours after the first symptoms of tetanus appeared. No special lesions were found after death.

Dr. Simpson next gives the result of seven cases, not seen but collected by him, where tetanus came on after abortion. The disease set in at variable periods from fourth to fourteenth day. It was fatal in all, death taking place in one at the end of sixty-one hours, and in another on thirteenth day.

He then gives the history of eighteen cases, in all of which tetanus supervened after parturition at the full period of utero-gestation; three of those are reported as recovering, each under a different plan of treatment. In one case the disease set in on the second day after delivery, in another on the third day, one on the seventeenth day, one at the end of three or four weeks, and lastly, one at the end of seven weeks.

Dr. Waring has published 232 fatal cases of tetanus that occurred after confinement, at Bombay, in three years. The disease appeared at variable periods from first day up to eighteenth. The duration of the disease is also very variable—one patient died in fifteen hours, another lived for ten days.

Of 102 cases at Bombay, published by order of Government, ten set in on the first day, and so on, one on fifteenth and one on the sixteenth day after delivery.

Surgeons are agreed upon the fact, that the state of the wound is as often apparently healthy as it is unhealthy, inflamed or sloughing, and so with regard to the lesions in the uterus, it has been found sometimes healthy and sometimes unhealthy, but in no case was there found any tendency to inflammation of the uterus.

The pathology of tetanus which should direct us in our treatment of the disease is, I regret to say, very obscure. That the disease results from some peculiar condition of the spinal cord produced and kept up by irritation of its substance or its afferent nerves, and that the brain is not involved in the disease, all admit.

The French hold that it is an inflammatory disease of the spinal cord; but how often do we see the spinal marrow inflamed without producing tetanus? and how often do we see tetanus where there is no inflammation of the cord or its membranes?

If you irritate, say by means of a pair of forceps, the exposed spinal cord of an animal recently decapitated you produce spasmodic contraction of the limbs. Why may not some mechanical irritation existing within the spinal canal of a living man have a similar effect. Again, if you irritate one of the spinal nerves of an animal whose head has just been cut off, the muscles of the limb contract spasmodically, those on the side to which the nerve belongs become rigid, and those on the other side also, which proves that the cord has the power or is capable of receiving impressions, through the medium of its afferent nerves, from parts at a distance, and of originating motion in the muscles of the trunk or limbs through the medium of its efferent nerves. These facts, brought out by the experiments of Marshall Hall, throw much light on the pathology of tetanus. We infer from them that the tonic spasm which marks the disease may be caused by a morbid condition of the spinal marrow itself, or of the nerves that belong to it.

In the latter case irritation is set up at the free extremity or somewhere in the course of incident nerves; along these an influence is conducted to the cranio-spinal axis, in which a process or change takes place, whereby an answering influence is reflected to the muscles along motor nerves, and thus the whole circle of action and reaction is run through with the suddenness and swiftness of lightning.

Dr. Marshall Hall calls the disease centric tetanus when the irritating cause operates directly on the spinal cord; when it exists in some part of the body distant from the spinal cord he calls it eccentric tetanus.

We must not forget, however, that a certain predisposition is necessary to render the body susceptible of the disease. But what the irritating cause is we too often know not, and therefore, the treatment, we must confess, is to a large extent, still imperfect, and alas, too often unsuccessful; the acute cases proving, almost invariably, fatal, no matter what the treatment.

Opium has been given to an extent almost incredible; one lady is reported to have taken 40,000 drops in twenty days; in another case an ounce of solid opium was taken, in divided doses, every day for twenty-two days. Most of the cures ascribed to the opiate treatment occurred in the chronic form of the disease, and therefore the question arises were they cures or recoveries?

In France, where the disease is looked upon as an inflammatory disease, bleeding has been pushed to its utmost limit, but with no better success than other remedies. From fourteen to fifteen pounds of blood have been taken in a few days from one patient. Another was bled eight times, and had 782 leeches applied to the epigastrium, and along the course of the spine. Some cases, where there was decided evidence of inflammation, local and general, were much benefited by bleeding in conjunction with other remedies. The warm bath has been pronounced

useful by some, harmless by others, and positively hurtful by not a few. The cold bath has also had its advocates, but with no better success. A tetanic patient in St. Thomas' Hospital was plunged into a cold bath at his own request. All the symptoms disappeared in a moment, but he was taken out lifeless almost immediately. The cold affusion, however, with dry rubbing, is a very favourite remedy, particularly in the West Indies. The late Dr. Todd strongly recommended ice to the spine, a remedy he had found very beneficial in convulsions. Dr. Bush, the celebrated American physician, looking upon the disease as one of debility, recommended bark and wine and spirits in large doses. In such cases nothing like intoxication is produced by it; the system resists the ordinary influence of the alcohol. In one case, related by Dr. Currie, the disease lasted six weeks, and in that time the patient drank 110 bottles of port wine.

Mercury has been tried, and apparently with good effect in some chronic cases; on the other hand, tetanus has set in, in some cases, where the patient was in a state of salivation at the time. Purgatives, foxglove, musk, prussic acid, and belladonna, have all had their advocates. Tobacco, as you are all aware, has been largely tried in this city, and strongly advocated by the Rev. Professor Haughton; but, I fear, with doubtful success, at least, in the acute form of the disease. It is argued against it, that it acts more on the involuntary than the voluntary muscles, the latter being those especially engaged in the disease, and that death by asthenia frequently occurs in tetanus; therefore the tobacco cannot be a safe or good remedy. Carbonate of iron has been given in large quantities, even as much as two pounds in the day, with success. Oil of turpentine, strychnia, and chloroform have all been highly extolled in turn. The removal of the injured limb, the division of the principal nerve leading to the wound, have also succeeded in arresting the disease, but they have as often failed.

I fear we have yet to look for a specific remedy in this fatal disease, simply because we are yet ignorant of the real nature of the malady or the lesion that induces it.—13*th May*, 1865.

Calculus extracted from Urethra by Vaginal Lithotomy.

Dr. Cronyn exhibited a calculus extracted from the urethra of a female in the Rotundo Hospital. It consisted almost exclusively of phosphate of ammonia and magnesia, was extremely friable, and weighed eighty grains. The patient's age was forty-four years, and she had borne twenty-two children. She presented herself at the hospital for relief from a menorrhea, which it was supposed from her age was consequent upon the change of life, but on examining with the finger the calculus was distinctly felt from the walls of the vagina, and upon the introduction of a sound into the urethra, the peculiar grating sound indicative of calculus was produced. The stone was extracted on the 8th February last. The patient having

been placed under the influence of chloroform, an incision was made through the wall of the vagina, and the calculus extracted by Dr. Denham, with little difficulty. After the operation a syphon catheter was introduced, and retained in the bladder for three or four days; after which, as she did not suffer from any incontinence of urine, the catheter was withdrawn, and in fourteen days the woman left the hospital. The incision was by this time completely healed, and she appeared to suffer no inconvenience whatever. In about a week afterwards she returned to the hospital and submitted to an examination, when scarcely a trace of the incision was to be seen.—13*th May*, 1865.

TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY.[a]

SESSION 1864-65.

Dr. John Bain, President.

Cases of Poisoning from Eating the Roots of the Œnanthe Crocata. By John Popham, M.A., M.B., Physician to the Cork North Infirmary.

On April 15th, 1865, five boys were brought to the Cork North Infirmary, at three o'clock, p.m., with symptoms of poisoning by the œnanthe crocata. They saw the plant growing on the banks of a stream, and mistaking it for field carrots, they all began to eat it with avidity. The effect of the poison was soon apparent. They felt a burning in the stomach and constriction of the throat, with nausea and headache, and one of the party fell down on the bank in strong convulsions. Terrified by this, the others left him, in order to get assistance; but when help arrived, he was found lying on his face, in the stream, quite dead. On being brought to the infirmary, between one and two hours after the occurrence, four out of the five were relieved from the severe symptoms of the poison by emetics and other remedies, but its sequelæ, such as colic pains in the abdomen, loss of animal heat, giddiness, and depression of spirits, remained till the following day. The fifth boy, named Mulcahy, was long in a very precarious state, passing in the interval before his admission through alternations of tetanic convulsions and insensibility, with loss of speech. An emetic of sulphate of zinc was given him, and succeeded in bringing up a piece of the root; the effect was kept up by draughts of mustard and water, which produced a salutary irritation of the tongue and pharynx, rousing him from the lethargic state, as he

[a] These reports are supplied by Dr. David Cremen, Secretary to the Society.

struggled violently against their administration. His symptoms were very critical; face flushed up during his struggles; livid, when quiet; pupils dilated, and insensible; breathing slow and laboured, interrupted by constant sighing and convulsive cough; pulse eighty-four, feeble, and irregular; both the heart's sounds distinctly audible. In order to test the loss of speech, as all our efforts were unsuccessful, I got his mother to speak to him, but for some time without effect, till at last a dim hazy perception of her familiar voice began to dawn upon his mind, and with a spasmodic exertion he jerked out the word "Mamma." After a course of similar entreaties and shakings up, she got him to put out his tongue, but in a very hesitating and tremulous fashion. Considerable hyperesthesia existed in the soles of the feet, the slightest tickling sufficed to rouse him from stupor; and accordingly when his somnolence waxed very profound, we availed ourselves of it, as a therapeutic agent, and he would invariably withdraw his feet with a growl of impatience. When placed in the sitting posture his head used to fall forwards, or backwards, or to the shoulder, as if the co-ordinating power of the muscles was suspended, or the polar force exhausted by the previous discharge on them of the spinal dynamic matter; but when replaced on the pillow, he tossed his head from side to side, accompanied by jactitation of the hands. As the emetics ceased to act the stomach pump was used by Dr. O'Sullivan, house surgeon, and warm water was thrown in, with the effect of bringing off some imperfectly masticated flakes of the root. Strong coffee was given him, which he took willingly, stopping after each mouthful for a second or two. Other remedies, such as sinapisms to the spine and abdomen, cold effusion to head, friction and warmth to feet, and stimulants were used. Roseola was noticed on the abdomen in patches, such as Devergie describes as being occasionally observed in like cases.

Seven o'clock, p.m.—He is in deep sleep, snoring loudly, and moaning, the eyelids spasmodically closed. When slapped on the cheek by the house surgeon, he bounds up indignantly, stammering out in pitiful remonstrance "wisha don't then," and covers up his head impatiently; he is immediately buried in unconsciousness again. No urine passed.

April 16.—More conscious, but still much confused in intellect, and vacant in expression; speech returning, but he takes time to answer a question; pupils less dilated; tongue sore and swollen; pulse 84, rising to 108 on sitting up.

April 17.—Consciousness has quite returned, but all is a blank since he eat the root up to this morning; temper irritable; tongue raw at tip and edges; he says that the quantity of the root which he swallowed was about the top joint of the little finger; the piece thrown up by the zinc emetic was about half that size. He left hospital next day quite recovered.

Remarks.—I was able to identify the plant by comparing the leaves and root with the excellent figure in *Sowerby's Botany* (No. 3713). The symptoms just described show the double property which this poison possesses as an acro-narcotic, first of causing local irritation of the mucous membrane in the primæ viæ, and the follicles of the stomach; and secondly, of violently disturbing the equilibrium of the muscular tissues, producing at intervals a powerful discharge on them of polar force, to be succeeded by great exhaustion; along with this irritation of the spinal cord there occurs cerebral congestion, torpor of the organs of sense, and stupefaction of the intellectual faculties. It seems to terminate life by one of two ways; one, by asphyxia, from its tetanic action upon the muscles of respiration, and, perhaps, the heart; the other, and more general way by coma, resembling the mode of death caused by opium in some respects, but differing in the dilated state of the pupil. Its effect upon the fibrin of the blood in destroying its coagulating power is common to it with other poisons.

Aphasia.—A symptom occurred in this case, namely, loss of speech, which has lately excited much attention. For some time after the occurrence his utterance was totally abolished, and but slowly returned. The tongue was certainly injured by the teeth during the spasms, but this would produce indistinctness, and not extinction of speech; besides he had the power of uttering sounds or outcries when stirred up actively. There is little doubt that this poison has the property of paralyzing the muscles of the tongue, producing that form of impeded movements of this organ as connected with vocal sounds, which Romberg calls *glosso-plegia articulata.* We have had a number of epithets lately coined by the French, intended to express the loss of voice and of speech, such as alalie, aphasie, aphemie, aphonie, for the propriety of each of which classical authorities are urged with more zeal perhaps than discretion. If I may be allowed to contribute a mite to this treasury of medical nomenclature, it would be to present the classics of another Greek verb hitherto, I believe, passed over. It appears to me that of all the words in the Greek language denoting modes of speech (and they are multifarious), the verb φθεγγομαι applies more than any of the others to the formation by the tongue of *articulate* sounds. If the subject were worth it, we could produce some quotations in proof. The substantive φθεγξις is used by Hippocrates, and the privative word αφθεγξις would express an inability to enunciate syllables. The English word aphthenxis, or aphthenxia is as euphonious as many other derivations from the Greek. All the other words appear to me to refer to effect rather than cause. Thus, aphasia is certainly loss of speech, but it describes an effect, the cause being emotional, such as the "vox faucibus hæsit" of the poet; alalia may be applied to an inability to carry on ordinary conversation without losing the memory of words (amnesia), as in the case of Zacharias,

in *St. Luke*, (chap. i., v. 20). In the present case the difficulty of utterance lasted some hours. The defect exists in a temporary paralysis of the hypoglossal nerve, and the effect probably extends to the olivary bodies, which, according to Schroeder Van der Kolk, are auxiliary ganglions to that nerve. The other form of paralysis of the tongue, Romberg's *glossoplegia masticatoria*, also existed in this case, but with less intensity; he was able to swallow, but not by a continuous effort, but more *per saltum*, and by small portions at a time. This paralysis passed off sooner than the other.

Case furnished by Dr. Day, Auckland, New Zealand.

A lady was confined under the care of another practitioner, of her second child; for a fortnight she seemed to be doing well, but the lochia continued. She then began to feel weaker than usual, and complained of wandering pains over the left side of thorax. She did not at first pay much attention to them, but at the end of six weeks the pains became so distressing, that she could not lie on that side.

She then sent for her medical attendant, who had hitherto made light of her complaint; he came, examined her chest, and told her that her lung was diseased.

Her husband was not satisfied, and as I was a personal friend, and had attended other members of the family, he begged me to see her.

I did so, and seeing nothing very urgent, said I would call at night when she had retired, and then examine her minutely, thus saving her the trouble and fatigue of undressing.

I was, however, hastily summoned at 8 p.m., the messenger saying she was dying. On entering the room I thought she was moribund; face ghastly, expressive of the utmost anxiety, the most distressing apnea; pulse thready, and scarcely to be numbered. On examining the chest I was unable to detect any respiratory sound in the left lung, dulness on percussion was evident enough, but not very great as compared with the opposite side, where the respiration was puerile.

No abnormal sound could be detected in the heart; in fact, the distinction between the systolic and diastolic sounds was lost in the rapid fluttering of the organ.

I said her life was in great danger, and her husband at once, at my desire, called in a French physician who had once attended him; he, after a short examination, said it was a lost case. The lady was of a very consumptive family, and he thought that she must have taken cold, and that the symptoms were all caused by a rapid deposition of miliary tubercle.

The immediate treatment, of course, was antispasmodic and stimulant.

Next day she was a little better; breathing still quick; pulse 140.

Under supporting treatment she gradually rallied; respiration returned

by degrees to the lung; at the end of three weeks it was fully restored and the pulse were down to 80. She is now in tolerable health.

Could this have been a case of embolism of the left pulmonary artery? Supposing this artery plugged, arterialization would of course cease in that lung; would not respiration also cease as a consequence? When the chest was bared the left side was motionless, while the play of the right was strongly marked.

From first to last she had *no cough.—February* 21*st*, 1865.

Case of Aneurism of the Arch of the Aorta Bursting into the Pericardium. By Thomas Blatherwick, M.R.C.S., Eng., Staff Surgeon 20th Depôt Battalion.

D. C., aged thirty, a soldier of ten years' service, part of which had been passed in India, had enjoyed good health; no record of his having suffered from syphilis. An active, well-proportioned man, of medium stature, face generally pale, and he was prematurely grey. He was a great dancer, with which amusement the disease he was labouring under did not interfere. He never complained to the medical officer during life, but stated to his comrades that he had pain and palpitation of the heart. On entering the door of his barrack, on the 17th February, he was observed to stagger, and then fell back; when I saw him a few minutes after he was quite dead.

Sectio cadaveris.—On raising the sternum the pericardium was seen greatly distended, and the left lung pushed back into the posterior part of the chest. Right lung adherent to walls of chest, by loose bands of adhesion, especially at the apex where it was consolidated; and on cutting into this portion it was found to contain a cavity of the size of a large nut, and several vomicæ. Left lung was very slightly consolidated at its apex, which was not adherent, but contained yellow cheesy tubercle in a surrounding capsule of organised lymph. The aorta was then slit up from the centre of its thoracic portion, and it was found to contain much atheromatous deposit, especially at its arch, where portions were seen like small pieces of crushed cancellated bone. The arch of the aorta was much dilated, and at the outer and posterior wall of its ascending portion there was a distinct aneurismal sac, the mouth of which was about an inch and a-half in diameter; and the diameter of the sac from its mouth to its fundus was about two and a-half inches; there was but little fibrin in the sac. By its lower wall the sac was adherent to the pericardium, and here a perforation about three-eighths of an inch in diameter showed where the sac had burst into that cavity and had caused death. On the lower side of the arch of the aorta, nearly opposite the origin of the left subclavian artery, was a large lamina of atheroma, at the edge of which was a lesion of the coats of the vessel extending by a very small opening

into the pericardium, through which blood may also have passed into that cavity.

The features of interest in this case was the man's ability to take active exercise to the last, and comparatively to have suffered so little from this formidable disease. 2nd. The existence of a second, though a minute and inconsiderable, opening into the pericardium. And 3rd. The existence of tubercular disease, which I have never seen in any previous case of aneurism coming under my care.

Case of Stenosis and Permanent Patency of both the Tricuspid and Mitral Valves; Prominency of Eyeballs. By JOHN POPHAM, A.M., M.B., Dublin.

The specimen which I beg to exhibit to the Society is one of rare occurrence; it shows the auriculo-ventricular valves at *both* sides of the heart, greatly contracted, and unable to close their respective orifices. The particulars of the case are the following:—

Mary Coffee, aged thirty-one, was a patient in the Cork Union Hospital during seven months, with heart disease, and its sequela, dropsy. The latter affection set in early, and towards the close reached an extent seldom witnessed in like cases. The whole of the areolar tissue of the body was anasarcous, the neck was so bloated as almost to disappear, the head seeming to be in immediate contact with the shoulders, while the extremities reached the utmost pitch of possible distention. The internal cavities participated in the dropsical effusion; for instance, both pleural cavities showed indications of large quantities of fluid; there was evidence also of hydrops pericardii, and considerable ascites existed. Before the dropsy had gained upon the thoracic cavities a careful examination was made of the heart; dulness extending beyond the sternum towards the right side was found, occupying more than the usual limits of the base of the heart. In the direction of both ventricles a loud and persistent bellows-murmur was heard replacing the first sound; the second sound was distinct but feebly heard. The systolic murmur extended over a wider base than ordinary towards the right, as if it was taken up again and diffused by *consonance*. Proofs of great venous obstruction were seen in the number of large blue veins, much divaricated, which spread over the upper half of the anterior surface of the chest; the jugulars were also turgid and pulsating. The general symptoms were, as may be supposed, very distressing orthopnea, lasting for months; sleep never protracted beyond a few minutes at a time; lividity amounting almost to cyanosis; eyes *prominent* to deformity, their pupils widely dilated; within the chest bronchial râles were audible only in the upper portions, and along the spine. The urine was always scanty, of a sooty colour, s. g. 1025 to 1030, not containing albumen, and loaded with urates. Death was slow in its approaches, and she spoke with great intelligence a few hours before she expired.

I had the assistance of Dr. W. S. Gardiner in making the *post mortem* examination. The chest walls were œdematous and fatty, the lungs were compressed, and pushed upwards and backwards by a large quantity of fluid, their texture was congested and œdematous, the bronchial membrane swollen and red, and the glands much hypertrophied. The pericardium contained from six to eight ounces of straw-coloured fluid. The heart, now before the society, is enlarged, its muscular substance pale, the left ventricle dilated, and its walls much hypertrophied. The mitral valve is contracted to the size of a marble, and a fringe of minute granular bodies covers the free border and surmounts the edge, others being scattered over its tendinous cords. No change in the aortic valves. The left auricle is dilated. Both chambers of the right heart are dilated, and their walls moderately thickened. The pulmonary artery is normal, but the tricuspid valve, like the bicuspid, is studded thickly with the pin-head granulations, its capacity admitting little more than one finger, and permanently open from partial adhesions. The weight of the heart on removing its contents was fifteen ounces; the blood in the large veins was fluid. No examination could be made of the other cavities. A gangrenous eschar was on the right hip.

Remarks.—The rarity of a *contracted* state of the right auriculo-ventricular orifice may be estimated from the observations made by Professor Skoda, who had great experience from his connexion with the Vienna hospitals, that stenosis of this opening is "exceedingly rare." "I have," he proceeds to say, "never yet observed it in the living. There are some specimens of it in the pathological museums here."[a] We must take care not to confound this constricted state of the ostium with its opposite or dilated condition, which is frequent enough. In the diagnosis of constricted tricuspid much uncertainty exists. Dr. Stokes is of opinion that "lesions of the tricuspid of any kind are so obscure as in the present state of our clinical knowledge scarcely to justify any positive diagnostics." What adds to the difficulty is that disease of this valve seldom occurs alone, but is accompanied with change in other valves, and especially in the analogous orifice of the left heart. In such a case the more powerful action of the left ventricle, helps to muffle the abnormal murmurs at the right side. When systolic murmurs occur in both ventricles we cannot apportion how much may be due to each, and we also lose the advantage of comparison. No doubt a systolic sound heard with greater distinctness over the site of the right ventricle, and *not* along the large arteries, awakens the suspicion of a diseased tricuspid. The general symptoms are much more fallacious, but the great retention of blood in the venous tributaries may corroborate the diagnosis. In the above case, the puffy appearance of face, neck, and chest, the staring and

[a] A Treatise on Auscultation by Dr. J. Skoda, translated by Dr. Markham, p. 335.

prominent eyeballs, and the enormous dropsy, can scarcely be regarded as casual adjuncts, but as important aids in detecting the disease.

A Case of Acute Inflammation of the Right Ovary. By D. Cremen, A.B, M.B., T.C.D., Physician to the Mercy Hospital, Cork.

M. S. had an easy labour of her fourth child, on 24th September, 1864. Her health was always good. The lochia on this occasion only continued for one week, while in previous labours they continued for three; on the third day after delivery she was seized with rigor, followed by severe pain in the right inguinal region; this continued more or less severe for three weeks, when after exposure to cold, it became so intense that I was called to visit her, and found her in a feverish state; on examining the abdomen, great pain was complained of on pressure over the hypogastric and right inguinal regions, and an irregular undefined tumour extending in the latter direction was found to exist; and, as the case progressed, became more defined; its length was about six inches, and in breadth about three. The tumour was twice leeched, and constant fomentations and poultices applied; it, however, continued to increase in size, and at length burst through the abdominal parietes, discharging about one pint and a-half of healthy pus, which changed in colour afterwards to a dark brown. She recovered without any bad consequence. Sulphate of quinine was freely given, and her strength sustained.

A Case of Ileus, terminating in Gangrene of the Muscular Coat of the Small Intestines. Under the care of E. R. Townsend, M.D., T.C.D.; Licentiate King and Queen's College of Physicians.

Mary Sullivan, aged forty, a servant, unmarried, was admitted into the South Infirmary, Cork, on Saturday, February 11th, 1865. History.—On the Saturday before admission was quite well, and whilst marketing got suddenly ill with severe pain over the region of the liver; she went home and took a cup of hot tea, which she vomited, the pain continuing, accompanied by bilious vomiting; a medical man was called in on the Wednesday following, who gave her a large dose of calomel and opium, and a castor oil and senna draught; this was followed by several large evacuations of liquid feces. The bilious vomiting and pain still continuing she was sent into hospital on Saturday, the 11th of February. On admission was very weak; countenance sunken, and expressive of great anxiety; bowels confined since Thursday night; stomach very irritable, constantly vomiting matter resembling coffee grounds, having a decidedly fecal odour. Tongue red and glazed; abdomen greatly distended, tympanitic, and very painful; but the pain was somewhat relieved by steady pressure; pulse 110, small and feeble; passes urine freely. She was ordered ten grains of calomel and one grain of opium at once, to be followed, in four hours, by five grains of calomel and one

of opium; this latter dose to be repeated towards morning if necessary; to have three pints of warm water injected into the rectum with the long tube, and repeated again in six hours. To be supported with beef-tea and brandy.

February 12th.—No improvement; the enemata did not bring away anything, though the tube was passed up to its full extent; vomiting still continues; had no sleep; enemata to be repeated; to take one grain of opium every four hours, and an ounce every second hour of a mixture containing an ounce of sulphate of magnesia and two drachms of carbonate of magnesia, in eight ounces of infusion of spearmint. This medicine was vomited each time immediately after being taken; no result from the enemata. Galvanism, was then tried without effect.

February 13th.—No action from the bowels; stercoraceous vomiting still continuing; towards evening became quite cold, and suffered from hiccough; pulse weaker; declines to take any nourishment, says it makes her sick; passes urine freely. Ordered two grains of calomel and one of powdered opium in a pill every four hours.

February 14th.—Appears better than last night; pulse something stronger; slept a little towards morning; still unable to bear anything on her stomach; abdomen tympanitic. Galvanism was again applied, but caused so much pain it had to be discontinued; to take three grains of calomel and one of powdered opium every third hour; to have another enema with a drachm of tincture of opium added; to be given with the long tube; no result; to have brandy, wine, and arrow-root in small quantities.

February 15th.—Fifth day since her admittance, abdomen softer, but still painful; can bear pressure, but cannot bear to be moved; pulse small, 130; she now, for the first time, noticed that she could pass wind from the bowels; this she continued to do in large quantity; has frequent hiccough; says she cannot see anybody; pupils contracted. Ordered five grains of Corban's extract of colocynth, with one grain of opium every four hours.

February 16th.—Pulse stronger, 110; abdomen much softer; gets up to the night chair frequently, but only passes wind in large quantities; kept down a little arrow-root; sight quite gone; pupils contracted; not drowsy at all. Ordered sixteen grains of calomel, half a grain of strychnine, three drops of spirits of wine, eight grains of powdered opium, and twenty-four grains of extract of Barbadoes aloes; to be made into eight pills, one to be taken every fourth hour. To continue brandy and arrow-root.

February 17th.—Abdomen still soft; complains of great pain if she is moved; stomach not so irritable; pulse 120, very weak; no action from the bowels.

February 18th.—Pulse 120, very weak; abdomen flaccid; vomiting

has quite ceased. To continue the strychnine and aloes pills, omitting the opium, and to take one ounce of infusion of senna of double strength, with two drachms of compound tincture of senna. In about four hours after taking the first of these pills and the draught she got out of bed and passed a large quantity of feces, containing much solid matter; the quantity was so great as nearly to fill the night chair; the bowels were moved again twice, largely, during the night.

February 19th.—Still complains of pain in the abdomen, but cannot now bear to be touched; is very feeble; bowels moved three times to-day spontaneously; took a pint and a-half of chicken broth with eight ounces of brandy, which were retained; sickness of stomach quite subsided.

February 20th.—Very weak, evidently sinking.

February 21st.—Very weak, but takes her nourishment well, consisting of brandy eight ounces, wine six ounces, chicken broth two pints; she continued to sink, and died at one o'clock on the morning of the 22nd. The sphincters became relaxed before death, and she passed involuntary stools under her.

This case was diagnosed to be one of ileus, and not of intus-susceptio, from the fact of the bowels having been freely opened by purgative medicine after the first setting in of the symptoms of obstruction, and from her being thereby only partially relieved; next day the pain increased, the vomiting returned, and became dark coloured and offensive, having a decidedly fecal odour. On her admission into hospital she was very weak; pulse 110, small and feeble; countenance sunken; belly distended and tympanitic, but pain not increased by pressure; no symptoms of peritonitis; said the pain was rather relieved by slight pressure over abdomen; stomach very irritable, rejecting everything immediately on its being taken. As she passed urine freely, and in large quantity, I concluded that the obstruction was in the lower part of the intestinal canal, and, from the fecal odour of the vomited matter, somewhere near the cecum or the lower part of the ileum; that it was not below the cecum was evident from the fact of the long tube having been several times passed up its entire length, and a large quantity of fluid injected each time, without bringing away any fecal matter. The treatment at first was by calomel and opium, then galvanism was tried without effect. On the Wednesday after her admission she said she could not see; her pupils were contracted, showing that she was fully under the influence of opium, but she was not at all drowsy; towards evening she began, for the first time, to pass wind from the bowels, showing that the canal was pervious, and leading me to hope that the spasm was relaxed to a certain extent. The colocynth and calomel not having produced any effect, I thought that the muscular coat of the bowels might be in a paralyzed state, and unable to contract sufficiently to expel its contents, and therefore determined to

try the effects of strychnine in combination with aloes, calomel, and opium, these pills she took for twenty-four hours without any action from the bowels, when both pain and vomiting having ceased I omitted the opium, continuing the strychnine, aloes, and calomel, and ordered a draught of strong infusion of senna. In four hours after taking the draught and one of the pills the bowels were moved largely, and several times after during the night, giving rise to a hope of her recovery; but it was a delusive one, as she sank gradually, and died on the 22nd instant, three days after the obstruction had given way. The *post mortem* was made eighteen hours after death, the following are the results:—Rigor mortis well marked, some commencing decomposition over right groin and down right thigh; on opening the abdomen a quantity of intolerably fetid gas escaped; the peritoneum was quite healthy, no signs of inflammation of it; no recent lymph, except at the femoral ring, where there was a small quantity of recently effused lymph cementing an enlarged gland to the ring; this gland occupied the entire ring; the small intestines were very much distended, and enormously increased in calibre; both the lower part of the jejunum and the entire extent of the ileum were both quite black and gangrenous, so soft as easily to be torn through. This gangrene appeared to be confined to the muscular coat and to the peritoneum immediately over it; the mucous coat was softened, but not otherwise altered, and not gangrenous; it was intensely congested; the colon was nearly empty, contracted and pallid in appearance; it was quite healthy, as were all the large intestines. The uterus was converted into a mass of scirrhus, with a large scirrhus tubercle, about the size of a small egg, attached to the fundus. It was clear from the results of the *post mortem* that the case was one of inflammation of the muscular coat of the ileum passing into gangrene; the action of the bowels was probably due to the relaxation of spasm caused by the gangrene, and was not due, as I at first supposed, to the effects of the strychnine. The case resembles some of those recorded by Dr. Abercrombie in his admirable work on the diseases of the stomach and abdominal viscera. Had the case come under my care earlier I think bleeding, either generally or locally, would have been of service, as the mercury and opium did not check the progress of the inflammation although given to the fullest extent; but on her admission into hospital she was too weak to allow of it; and having been nearly a week ill I thought the time for bleeding had gone by. The absence of peritoneal tenderness prevented my applying leeches to the abdomen; this absence of pain on pressure is, I think, curious, when there was such an extent of inflammation in the muscular coat of the small intestines. The duration of the case is also remarkable.

CLINICAL RECORDS.

Cases Treated in the Mater Misericordiæ Hospital. By T. Hayden, M.R.I.A., F.R.C.S.I., &c., Physician to the Hospital.

I.—*Partial Hemiplegia, with Convulsions, in a Child Twenty-seven Months Old; Recovery.*

Read, a boy twenty-seven months old, was admitted into hospital, Feb. 2, 1865; has been subject to "fits" since he was seven months old; during these fits he has a tendency to fall forwards and to right side, so as to strike his forehead on that side against the floor, if not supported in time; there is likewise, during the fits, agitation of the limbs and slight frothing at the mouth, with remarkable tremor or quivering of the features, and traction of the face to the left side

The approach of these attacks, of which there is one about every hour, was indicated by a tendency to droop, and irritability of temper. Left leg and arm are weaker than right; he is barely able to stand without support, and never uses the left hand; there is no strabismus; bowels free and appetite good; sleeps well, save when disturbed by fits; is well nourished, and rather irritable. Treatment consisted in gr. $\frac{1}{4}$ extract belladonna at night, blister to nape of neck, iodide of potassium, and aperient powders (pulv. scammon. c. gr. iii, calomel gr. ii, M. ft. pulv. P. r. n. sumend). This treatment was pursued for some weeks without much benefit. An issue was then made in nucha, and iodide of potassium and aperients continued with marked benefit. For fourteen days subsequently he had no *major* fit; he had, however a *minor* one every day. One of these I witnessed on the 11th of April. The boy was somewhat irritated, and suddenly his mouth was drawn to the left side; the left eyelids quivered, and the globe of the eye was inverted; there was no alteration of the pupil; finally, the eyelid drooped, the spasm ceased, the child became lethargic for a few minutes, and then completely recovered and became lively as usual.

On the 16th of April he had an attack of unilateral (left) convulsions lasting over two hours; this was repeated on the 17th, and witnessed by me. The child was apparently conscious, but lay motionless; features heavy; pupils rather dilated, but equally so; left side of face was twitched regularly, thirteen times in the minute, the angle of the mouth being drawn, during each spasm, to left side, and eyelids closed an equal number of times. The nurse reports that at the commencement of the attack the left leg moved synchronously with the face, but not the arm; pulse, 120, weak; face neither pale or flushed.

℞. Syrupi papaver, ether. sulph. a.a. gts. iii, aquæ ʒiii., statim.

℞. Hydrarg. c. cretâ gr. iiss, pulv. antimonial gr. iss, m., ft. pulv. ter indies sumend. Pulv. aperiens sicut antea, and blister to vertex.

From this date the child had no fit of any kind for three weeks, at the end of which time he was discharged from hospital.

I regarded this as an example of disease, probably of a strumous character, as there was a family history of struma, located at the base of the brain, and implicating the *right* lateral lobe of the cerebellum and the motor tract.

That the disease was located on the right side was inferred from the paralysis of the arm and leg being on the left; that the right lateral lobe of the cerebellum was implicated I concluded from the tendency to rotatory movement towards that side during the fits; and that the seat of the disease was *below* the decussation of the *portio dura* of the seventh pair, was to be deduced from the fact that the paralysis of the face was on the right side, whilst that of the extremities was on the left. The successful treatment by counter-irritants, iodide of potassium, small doses of mercury, and active aperients, in a case of apparently so formidable a character, and such long standing, affords encouragement.

II.—*Scorbutic Hemoptysis*; *Recovery under Treatment by Lemon Juice and Quinine.*

Henry Byrne, aged 45, cab-driver, admitted into hospital, June 9th, 1865; spat blood fourteen years ago, and occasionally since, a streak; has repeatedly bled from nose and gums. On this morning, June 9th, spat up a large quantity of dark blood; pulse, 72; dark blue line on margin of gums; moist râles universal over both lungs, loudest and most numerous in bases; pulmonary resonance and heart's action and sounds normal. ℞. Acid gallic, gr. v. 3tia. quaque hora.

June 12th.—Bled rather freely from nose last night, and continued to expectorate dark blood. ℞. ʒ ss. succi limon. ter in die; stop gallic acid.

June 13th.—No change; bled from nose and spat blood as previously; continue lemon juice.

June 15th.—Fine crepitus over lower half of left lung anteriorly, mixed with loud râles; but this and all other parts of chest resonant. ℞. Quinæ sulph. gr. xxx, acid sulph. dil. ♆ i., aquæ ad ʒ viii., st. coch. mag. ter in die.

June 20th.—Spat some florid blood mixed with frothy mucus; continue medicine.

A few days previously, in consequence of a suspicion I entertained of the existence of latent or central pneumonia, arising from the occasional resemblance of the sputa to those met with in that disease, I examined some of the expectorated matters microscopically; these were found to consist only of blood-cells, more or less disintegrated, mucus-cells, and epithelium—no compound granule cells, tube, or cell-cast, or other evidence of inflammatory exudation.

June 25th.—No blood whatever in expectoration, which is muco-purulent, since last report.

June 27th.—A little dark blood in expectoration.

June 30th.—No blood expectorated since 27th; expectoration muco-purulent and copious; patient walks about; sleeps, and takes his food well; is strong and in good condition; no night sweats or other evidence of phthisis; pulse did not rise above 80 during patient's stay in hospital; he lay on either side indifferently; no pain in any part of chest; loud bronchial râles continue over entire of both lungs. Diagnosis:—Bronchitis, with pulmonary hemorrhage, resulting from scorbutus.

I have seen this man within the current month (October) in comparatively good health, and earning his bread by driving, as before.

III. *Aggravated Dysmenorrhea; Exploration of the Uterus with the Endoscope; Cure.*

Anne Crolly, aged thirty-five, unmarried, settled in England many years, and has worked in a cotton factory; of full habit, rather pale and flabby, and apparently in good health, admitted June 23, '65.

History.—Two years ago had needing, followed by copious hemorrhage from the womb, which was accompanied by discharge of "clots;" this occurred suddenly, and continued eight months without intermission, but was not attended with pain. Has been repeatedly under medical treatment in England, and took mercury to salivation.

Bleeding ceased for five weeks; it then returned, and has continued to the present time; it is now, however, attended with pain, which she describes as being of a "squeezing" kind, and accompanied by "forcing."

Os uteri is patulous, and plugged with glairy mucus; its lips are congested, and on the slightest irritation florid blood flows freely from them.

Examined with Dr. Cruise's endoscope; the lining membrane of the uterus presented streaks of vascular engorgement, like the conjunctiva in a state of chronic inflammation; in several situations, also, the mucous membrane was seen to be rough and granular. It was touched, through the endoscope, with a twenty grain solution of nitrate of silver, and the *blanched* surface so treated was subsequently distinctly visible through that instrument.

Treatment consisted, in addition to the above, in repeated leeching of anus, warm hip baths, injections of sulphate of alum and oak bark, mild aperients, and vaginal suppositories, composed of acetat. plumbi, gr. x, extract opii. aquæ, gr. i, unguent hydrag. ʒi. M.

July 5.—Greatly improved; no bleeding for several days, and pain in breasts, which, when hemorrhage was troublesome, had been urgent, no longer exists.

Diagnosis—Dysmenorrhea from uterine congestion.

July 19.—Examined to-day; os uteri much less patulous; it is now pale, and a transparent glairy mucus oozes from it; no hemorrhage or pain for last three weeks; breasts still tender to pressure, but pain removed, partly by means of aconite and chloroform liniment, and gr. i of valerianate of zinc, ter in die; but mainly, no doubt, by the treatment directed to the uterus. Discharged this day.

With the assistance of my colleague, Dr. Cruise, the interior of the uterus was examined by means of his endoscope, by Drs. Churchill and William Stokes, jun., at a time when vascular congestion existed in a high degree.

There can be no doubt that the practical value of the endoscope was illustrated in this case, as without the use of it; although one might infer from the symptoms the condition of the interior of the womb, it would have been impossible to have the advantage of *ocular* demonstration of this, and to have directed local treatment with the eye.

September 13, '65.—I received a letter from Crolly's mother to-day, from Bolton, England, thanking me "for saving her daughter's life," &c., "after she had been treated to no effect in England."

I mention this letter, which was not in any way solicited, for the purpose of showing that up to that time the girl had continued well.

Artificial Tooth and Plate Swallowed during Puerperal Convulsions; Gastritis; Death. Reported by E. T. Burton, Birmingham.

Elizabeth Scotney, aged twenty-seven, about six and a half months pregnant of her first child, complained of distracting pain in the forehead, at six o'clock, p.m., 28th May, having dined early in the day off part of a boiled leg of beef and a large quantity of new potatoes. The pain continued without intermission till the same hour next evening, when she was suddenly seized with epileptic convulsions. A surgeon in the neighbourhood was called in, and he ordered her a mustard plaster to the back of the neck, telling her friends, when he left, to let him hear of her in three hours. At the expiration of that time he was informed that she had had twelve similar attacks, when he refused to see her again. At her husband's request, I saw her at twelve o'clock, and found her almost comatose, the features distorted, and the tongue dreadfully lacerated; pulse 120; great heat of forehead; fetal heart distinctly heard; os uteri perfectly closed; bladder nearly empty; no albumen present in the urine; bowels rather confined. Ordered a fly blister to the back of the neck, three leeches to each side of the forehead, a purgative enema—to have internally, if the enema did not act, one minim

of croton oil with ten grains of calomel. Saw her again at five o'clock, a.m., 30th—pulse same; had had only five fits since twelve o'clock, and but two of these occurred after depletion by the leeches and vesication by the blister. On vaginal examination, found the cervix uteri low in the pelvis, the os soft, dilated to the circumference of a florin, and the membranes unruptured. I at once let the liquor amnii escape, which gave immediate relief. Bowels shortly after were freely moved. I then sent for Mr. Scofield, of Highgate, when we delivered her by craniotomy of a fine-sized healthy boy. During the operation, which occupied some ten minutes, she had two slight fits accompanying uterine action. Delivered at 6 a.m., and slept till 10 a.m., when she awoke, and had another attack, and two more less intense, within an hour. From this time she seemed to mend, consciousness gradually returning; pulse 90, but weak. Ordered, at first, a dessert spoonful of the egg-and-brandy mixture every twenty minutes, and afterwards but every hour; beef-tea and milk *ad libitum*. Bowels freely moved, and water passed regularly. Saw her again at 10 p.m.—Considerably improved, attempts to speak, but unable to articulate, from the swollen state of the tongue. 31st.—Pulse 100; skin hot and dry; considerable thirst; stopped the brandy, and ordered some bark, with ammonia; and as there was slight tenderness over the abdomen, to have a linseed poultice. 5 p.m.—Vomiting suddenly set in. To have three minims of prussic acid (P.L) with some ammonia, every hour, and a large mustard plaster over the heart and stomach, also to swallow some ice. When this treatment failed to allay vomiting, gave her creasote, but without success. Patient gradually sank, and died at 2 a.m., June 1.

Post mortem examination.—Lungs, liver, and kidneys all healthy; heart pale, and containing a small quantity of thin blood. No solid food in the stomach, but about twelve ounces of fluid, and an artificial tooth, with gold plate attached, which the patient had evidently swallowed during one of the fits, as the friends state that they saw it in her mouth when she was first seized. Joined to the plate (which was one and a half inches long by half an inch broad) were five sharp hooks to fasten on the adjoining teeth, and so placed that however the plate was turned one of these hooks came uppermost and grappled to the rugæ of the stomach. I found it at the pyloric orifice, and in its vicinity a considerable patch of inflammation, as also in five other parts of the stomach. Very slight inflammation of the peritoneum, but of the fundus uteri and about the broad ligaments considerable; otherwise the uterus was healthy.

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